

THE

Australasian Journal of Psychology and Philosophy.

Vol. I.

SEPTEMBER, 1923.

No. 3.

THE PAN-PACIFIC SCIENTIFIC CONGRESS AND THE STUDY OF SOCIOLOGY.

THE Pan-Pacific Congress has an ethical as well as a scientific significance. Science is a cosmopolitan even more than a national interest. It is one of those universal interests before which the barriers of race, nationality, and religion give way. Unhappily, this is more the expression of an ideal than a fact. Our standards and judgments of Beauty and Goodness are not unqualified by differences of race and religion, and the interests of Truth "in the abstract" are too often subordinated to concrete "interests" of all kinds. We are still too much shaken by recent events to find a facile satisfaction in the glowing language and sentimental optimism of the founders of the first International Exhibitions and Congresses. We prefer the measured terms in which the promoters of the present Congress express its double purpose—it aims "at the promotion of the study of scientific problems of common interest, and the maintenance of harmonious relations between all the countries within and bordering the Pacific region."

It does not come within the province of this Journal to estimate the work of the Congress, except in so far as it is related to human sciences like Psychology and Sociology. These two subjects find no specific place in the scheme of study outlined by the promoters, but they cannot be excluded from the purview of those peculiarly modern sciences, Geography* and Ethnology. Geography has been defined as the "study of environment in its relation to human values," and, thanks to the genius of Professor Griffith Taylor, we in Australia, are beginning to recognise its comprehensive range and its immense practical value. Sir Edgeworth David has described its scope as that of "nation-planning" in a broad sense; and, if so, its study is of vital importance in relation to our national welfare. The record of Australian land settle-

* Before the War there were in Germany and Austria 65 Chairs in Geography and Meteorology, while at Chicago University 55 distinct courses in Geography were offered to students. Four years ago there was not a single full course lecturer on the subject in any University in Australia. In the University of Sydney the teaching of the subject is now well organised under Professor Griffith Taylor.

ment and railway construction would tell a very different story if they had been carried out with greater scientific knowledge and expert control. Apart from the malign influence of sectional and political interests, development has often been on wrong lines, through sheer ignorance or mistaken analogies from the experience of other countries, without adequate consideration of the many important differences in Australian conditions.

The fact that Anthropology and Ethnology are in great part sociological studies does not altogether excuse the omission of Sociology from the list of subjects in the syllabus of Congress. A valuable opportunity has been lost through the omission. The meeting of the Congress would not have been less valuable to savants, and might have been more interesting and instructive to the cultured Australian public if, in addition to the other sciences, Sociology had been given the place its importance in modern life and knowledge demands. Much of the Sociology of the past has no doubt been more deductive than observational, but that criticism applies to other sciences as well. The biologist assumed too readily that social institutions and social development could be explained by extending to the new sphere the concepts and processes which had been found to work satisfactorily in the field of biological evolution. And for a time Sociology meant little more than a bad mixture of a priori reasoning and descriptive matter selected to reinforce deduced conclusions. It was easier for the armchair sociologist to reconstruct primitive social life than to observe it. After the biologist came the psychologist, claiming that it was possible to reduce the complexity of social life to a few fundamental and simplified problems in Psychology; as if, for example, the Great War could be explained by conjuring with an alleged "instinct of pugnacity." And still more recently, the Psychoanalyst has invaded the social field with the alarming "conclusion that the beginning of religion, ethics, society, and art meet in the Oedipus complex."* The modern Science of Sociology must not, however, be confused with the a priori speculation of the past, or with the vagaries of specialists when they wander outside their own restricted sphere of observation. The Science of Sociology is an accomplished fact, and the contributions of English, American, French, German, and Italian sociologists are undoubted additions to the sum of positive knowledge. To the politician and the publicist the aspect of Sociology which appeals most is that which relates to the social problems of the present and the immediate future, comparative politics in the broadest sense. But the best introduction to the social

*Freud's Totem and Taboo, page 260. See also Elliott Smith's article on Freud's Speculations in Ethnology. Monist, January, 1923.

sciences in general is the study of the life of primitive man. The greatest advance in our knowledge of the life of primitive man have been made through recent discoveries in prehistoric archaeology, and through the systematic investigation of primitive peoples now existing, primitive in the sense that they have not advanced beyond a low stage of culture. Biologically and psychically they do not differ essentially from ourselves, for, in the chronology of biological and psychic development, a thousand years are but as a day. The London school of sociologists is distinguished by the admirable way in which investigations into social origins have been combined with the systematic analysis of the various factors and stages of social development. It is through the union of these two aspects that Sociology becomes a "central science" by means of which so many other studies—historical, legal, economic, political—can be correlated in the education and training of the modern man. Yet it is just this central science which, except incidentally by some professor of history or economics, is the most neglected subject in our Australasian Universities. The Australasian Association for the Advancement of Science has at successive meetings passed resolutions for transmission to the University authorities, in favour of the establishment of a Chair of Sociology. The Professorial Board of the Sydney University has on more than one occasion put a Chair of Sociology among the "more immediate needs," and the Senate of that University, several years ago, adopted a scheme of University Extension, in which Sociology again was placed at the head of the list of important studies in which professorships should be instituted. But beyond passing resolutions and adopting schemes, nothing has been done. It may be that to some other University will belong the honour of removing the reproach that in our Australasian schools of learning no provision is made for the scientific and systematic study of society, a study which promises to become the science of the Twentieth Century. Australia and the Islands of the Pacific provide what has long been recognised as a most valuable field for sociological research. Much material has been accumulated in the past by diligent and enthusiastic Australian observers, but few of them have had the requisite scientific training; while for the correlation and interpretation of data, we have had to depend, unless for a few brilliant exceptions, on trained experts in other countries. Finally, Australia and New Zealand may be "laboratories of social and political experiment" for the benefit of older and more cautious communities, but our experiments might be more instructive for ourselves, and less expensive for our children, if they were accompanied by the knowledge and experience which systematic study and training are supposed to provide.

WASTE.

By

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DIRE necessity has often revealed to the human mind things to which it had previously been oblivious, a fact markedly exemplified in the regimes which had to be imposed on various peoples during the recent war. Not all, however, have yet learned one of the greatest lessons that it had to teach, viz., that, in view of the claims of the world's developing populations, waste—to say nothing of other ethical aspects—is foolish and may be extremely dangerous. This article proposes, among other things, to submit considerations which emphasize this fact.

The material advances of civilisation have brought the different nations of mankind into closer touch. The speed with which news is disseminated, the quickened transport and communication, the scope of finance, the modern internationalism and anonymity of capital, and the reactions of each on the other, have virtually made the world smaller, and have called into being new aspects of ethical forces. All peoples are now nearer neighbours, a fact which involves consequences.

In some measure, however, this nearness is due not merely to the greater touch of peoples and the increased intimacy of that touch. Their mutual dependence and duty have more clearly appeared. The obligations, for example, of nations in possession of territories with great natural resources, or in the possession of material abundance, have perhaps never been so manifest; and the meaning of the northern legend of "Paavo the Peasant"—who recognised that his good harvest of corn must lighten the miseries of his neighbour, rather than minister to his own desire for luxury—is more clearly apprehended, if not by the world at large, at least by many an economic thinker.

Waste may assume both active and passive forms, e.g., the dissipation of wealth, and restraint of creative power. Needless luxury and sabotage are also examples of the former; unemployment and defective industrial organisation, of the latter.

At least one people has nationally recognised the subject to be of eminent significance. On the 12th January, 1921, the President of the American Engineering Council, Mr. Her-

bert Hoover, named fifteen engineers as a Committee on "Elimination of Waste in Industry"; two more were added later. On the 3rd June, 1921, at St. Louis, a summary of its preliminary findings was presented. About fifty engineers devoted approximately two months of their time to certain analytical work in order to ascertain a suitable measure of industrial waste actually existing. No offices of direction were remunerated, the work being undertaken as a public service, and carried out at less than cost. Such is the evidence that practical men are beginning to take serious account of the meaning of waste in national life.

Before dealing with the subject in any detail, it is desirable to have a conspectus of the whole position, both as to its essence and consequence, regarding it from the widest standpoint.

Potential waste may be attributed to unused opportunities, and to unused powers. The former arise mainly from ignorance, from lack of research, from indifferent education and training, and from indolence. The latter have their origins in the defects of national organisation and in those of industrial organisation, in defective national hygiene, in ill-health, in physical defects, in preventable accident, in unemployment, in the deterrent effects of industrial and economic troubles, and in defects in national policy.

Actual waste may be of material, of time, of ability, and of power. The first of these may be attributed to ignorance, carelessness, stupidity, accident, or it may be deliberate as in wastage of material, or in active sabotage. Time wastage may be due to indolence, to defective method of working, to incoördination of effort, to accident, or it may be deliberate. The wastage of ability may arise from indifference, from non-adaptation of the individual to his tasks—"misfits," from the incoördination of cases of combined effort, from accident. Wastage of power may be through carelessness, accident, through inappropriate selection of the kind of power applied, through mechanical defects, or it may be deliberate.

Besides potential and actual waste, there is what may be called consequential waste, that is loss which arises from failure to realise the productive possibilities of a territory, or which arises as the direct consequence either of dislocation or incoördination of effort, or from all those things which act as deterrents to activity. These, for example, may be the consequences of strikes. They may arise from unfavourable reactions between industries through industrial troubles, or by the reaction of one industry upon another. They may origi-

nate through the difficulty or the impossibility of coördinated effort as between industries, or may be attributable to inaction from uncertainty, or to inability to sustain each necessary element in correlated industries generally.

Consequential waste is, of course, of the nature of potential rather than actual waste, but nevertheless deserves serious consideration, for it reacts upon national power and consequently upon the political destiny of a people.

The above conspectus, however crude, serves to expose the range and significance of the subject, and discloses the fact that, in order to avoid waste in the wider sense, much more is involved than is obvious on a superficial view. In this connection it is well to realise that it is not always possible to express in economic terms the nature of waste or its effect upon individuals or peoples. Life, individual or communal, is a complex, and is affected by its natural as well as by its self-created environment. Thus opportunities and resources may be great, but yet neglected or unknown. An economically efficient people may play a great role in the world-life, and an inefficient one may fail, not because the natural advantages are absent, but because they are ineffectively used, or because opportunities of development are neglected. In a very real sense, then, these last are true examples of waste. In so far as such neglect is characteristic of a nation, it reduces its influence and tends to its occupying a place of lesser significance in the affairs of mankind. On the other hand a well-disciplined people, using its personal and material resources effectively, may survive the shock of onslaught of an enemy, and may even turn the tables on the attackers and become victors. To sum up, one sees that waste may take many forms; wasted opportunity and resource may issue not merely in loss of wealth or of prestige, but even in national calamity, and this is still more probable as time goes on and populations increase.

Within the limits of the present article, it is of course impossible to touch upon more than the fringe of the subject, and it will be necessary to restrict it mainly to the question of industrial waste. In respect of production in six important industries, this was analysed by the American Committee already referred to under the following heads, viz.:—

1. Low amount attributable to defective management of plants, equipments or men, to faulty equipments, or to the workers themselves;
2. Interruption through idleness either of men or of equipments;

3. Intentional restriction of output by owners, by managers, or by labour; and

4. Losses through ill-health, through physical defects, and through industrial accidents.

In order to give a broad indication of the comparative position of each of these limiting factors, an assessment was made of the measure of responsibility for each in respect of what should be held to be chargeable against management, against labour, and against other factors (public, trade relationships, etc.). The assessment gave the following results, viz.:—

Industry	Percentage responsibility attributable to			Ratio of Waste in best to waste in the average.
	Management.	Labour.	Other Factors.	
Men's Clothing Factories	75	16	9	$\frac{1}{2}$
Building Industry	65	21	14	2.3
Printing	63	28	9	$\frac{1}{2}$
Boot and Shoe Factories	73	11	16	1.3
Metal Trades	81	9	10	2.9
Textile Factories	50	10	40	2.3

These show roughly that in the indicated trades in the United States the major share of the responsibility for losses in production belong to the management, rather than to the labour and other factors. Similar information does not yet exist for Australian industry, the necessary data and analyses not being yet to hand.

The American analyses showed that serious losses arise from many different causes, among which may be mentioned the following:—Defective control of material leading to loss of time or idleness; defective design of products, operating to prevent standardisation, and thus giving rise to waste of material; inadequate control of the scheme of production leading to congestion on the one hand and to idleness on the other; lack of cost-controls, resulting in an absence of prompt correction of defects; insufficient research in regard to operative procedure, etc.; faulty control of labour, leading to expense in replacement of skilled operatives. The significance of these may be readily illustrated. By properly formulating a calendar of operations, it is generally possible to avoid idleness of men or plant, and to secure an appropriate regulation of delivery and movement of material. In one trade—shoemaking—it was found that 35 per cent. of the time of workmen was actually lost by disregard of this. The con-

sequence of defective control of design was very remarkable. Thus it was estimated that, by standardising the thickness of walls alone, about £100 could be saved in the construction of the average house. In the printing trades there were no less than 600 types of folding-machines; and there were 6000 brands of paper, of which 50 per cent. were but little used. The sizes of catalogues numbered not less than 147, in which connection it may be noted that in a 6 in. by 9 in. page a "trim" of $\frac{1}{4}$ inch means 7 per cent. of the paper. It was estimated that, by the standardisation of newspaper columns in the United States—a saving annually of £600,000 to £1,000,000 would result, say, roughly, £1 per 100 head of population. For Australia this would represent £55,000. In clothing factories, better shop methods would—so it was estimated—increase the productiveness 40 per cent. In printing trades only 3.6 per cent. had a standard costing system, and 12.1 per cent. a knowledge of all general costs. In 1919 the 15.7 per cent. of the total number made money, while the balance of 84.3 per cent. made a loss.

Systematic research as to market demands, and supplies of raw materials were usually lacking, and production of kinds and qualities of raw material which were required (e.g., leather in the shoe trade) was impossible, through absence of systematic attention thereto. Inefficient workmanship, including spoilage was recognised as a cause of loss which is not easy to cope with, since "experience has shown that it is difficult to interest workmen in training courses." It is proper to point out that in certain industries the practice of permitting the cancellation of orders, and the return of goods at the end of the season, accentuated the difficulty of a perfect adjustment of industrial effort. Normally, cancellations ranged between 3 and 14 per cent., and returns 5 to 11 per cent., but in an abnormal year (1920) these were increased to 33 and 18 per cent. respectively.

Certain features of the American report are well worthy of attention. Without troubling to adhere to any particular order of development of the subject, the following examples of waste and loss may be referred to a little more fully.

Unemployment due to industrial depression, intermittent unemployment due to the fact that practically all industry is seasonal, and unemployment due to labour disturbances, penalise output; nevertheless it is sometimes possible to balance these by increased production. This reveals, however, the fact that the highest production is probably what would often be possible with better organisation of human effort.

Restricted production was found to occur at times by collision between employers and labour, and by collusion, in order to maintain high prices, between contractors, builders, and supply dealers. These were not measured in the American study. Restrictions of output by workers, sometimes in order to diminish the danger of unemployment, and sometimes because scarcity of labour enabled them to slacken speed without fear of dismissal, could be subjected to measurement. Union rules often hampered individual members. For example, some unions would not permit a brush wider than $4\frac{1}{2}$ inches to be used for oil paints, although a wider brush would be more economical.

The standardising of methods of production, and the measurement of work performed are often opposed by unions, as also is the use of labour-saving devices. For example, painters' unions refuse to allow their men to work on a job where a spraying machine is used. The limiting of the number of apprentices is regarded by the engineer who investigated this aspect of restriction, as often unfair. It is recognised also that the common rule that members of one craft union shall not encroach upon the work of another, "results in large waste and little benefit." The extent to which this injuriously affects the output is disclosed by the statement that "unions frequently require three or four skilled employees "to perform various operations on a plain job which a single worker could satisfactorily do by himself." A union rule in newspaper printing requires that "all advertising matter coming into the plant in electrotypes form must be reset by the compositors, which useless work is sometimes done weeks after the advertisement has appeared." "Press-room workers have been known to insist that a compositor be brought from the composing room to make the change to the next imprint while they stand idly by."

Other examples of a similar kind are as follow:—Union carpenters may not lay bricks, nor union plumbers undertake carpentering work. Carpenters' helpers are not permitted to use carpenters' tools; thus carpenters strip "forms" from concrete, and structural steel workers bring steel from the unloading point to the building site, though both can be done more economically by labourers. Hoisting engineers claim the right to run all types of engines, including even small gas-driven pumps requiring no skilled attention. Thus a union engineer had to be hired at high wages to simply start a pump, occasionally oil it, and stop it at the end of the day.

All restrictions of these kinds, and in fact all which operate to prevent the use of the best and most efficient

machines, are self-evidently limitations of output and hence wasteful.

Losses of production from ill-health are ameliorable, probably to a far greater extent than is ordinarily realised. In 1900 a "National Conservation Commissioner" appointed by President Roosevelt found that always about $3\frac{1}{4}$ per cent. of the population was seriously ill, and that 42 per cent. of this was preventable. The loss among industrial workers and from preventable disease was estimated to be about the order of 40/- per annum per worker. Somewhat more than half the industrial population have defective vision requiring correction, and a considerable proportion suffer from defective teeth and mouth infection, appreciably reducing their industrial effectiveness. It is believed that these conditions ought to be studied in relation to fatigue in industrial efforts.

From accident, the economic industrial losses were estimated at about 35/- per inhabitant per annum, or, including medical aid and overhead insurance, not less than 41/- per inhabitant per annum. This takes no account of the indirect loss of production due to the stoppage or slowing-down of work when accidents occur, which also must be considerable.

Among the serious causes of waste avoidable, fatigue may not be disregarded. It may arise either in the central nervous system, in the muscular system, or in both, that experienced in industry, however, being attributable mainly to the central nervous system. American research would appear to have thrown some doubt upon the existence of a specific fatigue-toxin operating in industrial cases; they are believed to be principally—if not wholly—of nervous origin. The incidence of fatigue is attributed to bad industrial and bad personal hygiene. Physical examinations in the United States have shown that more than 50 per cent. of any group of physical workers exhibit substandard or disease conditions. Probably they are not much better here. Obviously such conditions must be taken into account in any fatigue-studies purporting to be thorough. Infected teeth, infected tonsils, constipation, defective diet, mental worries, certainly all reduce the working capacity. Investigations led to the belief that, by suitable instruction and examination of adults, four lives per annum per 1000 living could be saved in the United States. Thus one sees that higher ideals of personal and industrial hygiene, and indeed of the obligations of citizenship generally, are essentials if an adequate remedy is to be secured. It has been suggested that, for a factory population of 2,500, a full-time physician, two nurses, one dental hygienist for prophylactic work alone, and appropriate clinic and dental equipment are

all needed. For small factories a suitable co-operative medical service could be made to meet all requirements.

There is great need for improvement in what may be called the mere technique of labour operations. The researches of F. B. Gilbreth, F. W. Taylor, Gante, S. E. Thompson, Jules Amar and others have shown that in general operatives execute their tasks with but very little regard to saving the human machine from unnecessary effort and movement. From the standpoint of mechanics, the human body is unquestionably to be viewed as an energy-producing machine of very limited capacity, and in any given type of labour the draft thereon for a particular output should of course be made a minimum. This minimum can be realised by so conducting each detail of any working operation that the least effort necessary for its execution is put forth. The proper method for every kind of operation can be ascertained if it be made the subject of exact study and the result with respect of human efficiency is very striking. The better methods conform to the principle of least effort, and to ascertain and employ them means, of course, corresponding advantage in respect of the comfort and efficiency of labour as well as in output, for in general we waste no mean percentage of our effort and tire ourselves unnecessarily.

It is curious that ignorant opposition to the regimentation of effort exists in many quarters where it might naturally be expected to be absent. And as a consequence both false economic theories and physical indiscipline are seen to involve loss. Both are frequent serious causes of waste effort and of lost opportunity. When indiscipline result in strikes, even the direct losses may be very appreciable, and national economic power may be grievously damaged, perhaps but slightly directly, but indirectly greatly.

From a recent return published by the Commonwealth Statistician, Mr. C. H. Wickens, F.I.A., for the quinquennium 1917 to 1921, it may be deduced that the annual average number of disputes in Australia was no less than 476, and concerned on the average 1560 establishments, involving, also on the average, 103,926 work people directly, and 37,807 indirectly, or a total of 141,733. The average number of "working days" directly lost per year was no less than 2,863,483, and resulted in an annual loss in wages of £1,779,964. This direct loss, amounting to no less than £8,899,000 in a decennium for an average population of about 5,258,300, represents a decennial loss almost exactly of £1/14/- per man, woman and child of the population, or

about £4 per breadwinner, since for every 1000 of the total population there are only 428 breadwinners.

This, however, is not the total loss. Wages in 1921-22 formed about 52.1-3 per cent. of the value added by manufacture; hence the direct economic loss by reducing the wealth which would have been created but for the strike would be somewhat over double the above figures. Beyond this, however, are losses arising from some degree of dislocation of other businesses, by partial stoppage or retardation of the normal rate of working, and by an unfavourable reaction on the disposition of the community.

The indirect losses are not easy to define or to estimate, but they are serious. Business generally is injuriously affected by strike losses as well as by strikes themselves, apart from the moral injury to employees and employers, and it goes without saying that they may easily have very far-reaching effects on the destiny of a people, especially a people involved in an increased national indebtedness through war, amounting to no less than £173 per head of population or £404 per breadwinner as in Australia. The taxation burdens following on war give only an inadequate idea of the devastation and the waste of wealth which occurs through the collisions of human wills resulting in war. Of this, however, more hereafter. The strike is, of course, a minor collision of will. Its wastage, however, is not merely failure to produce, for during its progress wealth already produced disappears. Like the locust it eats directly into the vitals of the living organism which carries it, and renders it less vigorous in its organic life. It reduces the rate at which a population can increase, and limits a people's enjoyment of the wealth which normally would be created by its activities.

Contemplating the facts above mentioned, one begins to see that, in order to grasp the significance of waste, it is necessary to have regard not merely to the *physical* side of human life. The waste of effort and of material in ill-regulated manufacture and production, in the failure to turn by-products to account, in uninformed and unintelligent agriculture, in defective personal and national hygiene, in the mal-arrangement of conditions of country or city life, in failure to combat the enemies of our fields and forests, in inappropriate utilisation of our resources, in ignorant exploitation of natural advantages, all these are serious but do not exhaust the subject of waste. They are of the nature of that waste which results from ignorance or because of indifference, rather than that which is the consequence of a perverted will.

In war we have the most terrible illustration of the waste which arises from ill-will. This waste is of a double incidence. Human effort, which might be directed to the work of ameliorating the conditions of man's life upon earth, is directed instead to the destruction of life and of wealth. In war wastage is a direct aim, since it tends to shatter the power of resistance. And modern instruments of destruction are extremely effective in this fiendish function. The labours of years, indeed of centuries, are brought to naught in minutes, and man is not only impoverished, even his faculty for effort is weakened. What is attempted by the study of disease and its remedies, by the study of effort and the increasing of its efficiency, by the study of the means of ensuring generous and friendly relations in personal, communal, national and international life, is rendered futile, and the aspirations of the nobler elements of mankind wear the aspect of a mocking dream.

The spirit of egoism which leads to war is the *fons et origo* of this form of waste. If merciless and unscrupulous competitions govern life, no merely mechanical changes in the mechanism of civilisation can eliminate the consequences of bad-will, and as time goes on wastage will be increasingly and appallingly evident. There is no limit to competition in engines of destruction, and the very limited means of ameliorating human life are impaired accordingly. £100,000,000 for the creation of a great army or navy is but a poor effort. If this sum could safely be devoted to education and to sociologic studies, in short, if it could be used for the examination of the problems of personal, national, and international life, what might not be achieved? Such a revolution however in human ways implies a change from unscrupulous international rivalries, to a *real* recognition of the brotherhood of man, and the abandonment of the merely national standpoint. It implies, moreover, an adjustment of the life-efforts of nation and nation; it implies discipline in regard to their expansion and economic claims; in short, it demands a recognition of ethical controls in lieu of egoistic self-assertions. Whether the world is moving toward this or not, cannot be discussed here. It is sufficient to realise that, so long as the present attitude exists, the tribute we must pay to disaster is colossal. This tribute is largely waste. Every £5,000,000 given for a battleship, rather than for education, is a throwing away of wealth, a consequence of what is really a remediable attitude of the human will. Every £10,000,000 found for the equipment of an army rather than for the development of a country, is a failure in world-organisation for which we

are paying dearly. And when navies and armies become active in their work of destroying, the activity adds to these wastes, that of the actual destruction and its aftermath, burnt and wrecked cities and villages, farms and homes of men, and their mutilations and annihilation. These are the super-waste of ill-will. Whether man can avoid war is hard to say: if it be not a necessity, then it is the supreme example of waste in the life of man, the ghastly tribute which an evil will has laid upon the human race.

The terrors of the last war will probably be completely eclipsed by wars to come. The intellectual ineptitude, which drew distinctions between belligerents and non-belligerents, and between mutilation and death by explosives or by poison-gases, has passed from the thought of those who see clearly. War in all forms is a devilish disaster—a thing which ought not to be. It is now seen by intelligent thinkers that, if resorted to, any limitation of its horrid incidence is futile. And as a consequence it is more clearly recognised that it is an injury alike to vanquished and victor, even if the victory is complete. It is a superwaste, against the occurrence of which the best thought of mankind is sorely needed to find a remedy. But considerations of the remedy carry us far-afield.

Man is an organism with the control and direction of the power of reproduction, and this is fundamentally involved in the issue because population cannot increase at its present rate for even four centuries. All man's relationships, whether individual or collective, can be made the subject of systematic study. The world has, in a certain sense, now become an economic solidarity, but it is not also a political solidarity. Strife and its consequent waste arise from the non-adjustment of the elements of his being in their mutual relations. If he is not to suffer more and more grievously the colossal destruction and anguish and the wastages of war, then the supreme change that is necessary is that which inheres in the fundamental policy of his life; in short, whether this policy is to be egoism or to take account of the rights of others. And this question demands the closest examination. It cannot here be set forth.

The lesson for Australia, however, is briefly this: War is still a contingency to be taken into serious account. Australia is a splendid but unpopulated heritage from the Mother land; and failure to utilise its resources so that the creation of great wealth and population for its defence is possible, is a failure of the most momentous character. It is the supreme waste, the waste of resource and opportunity. Such waste

will leave us at the mercy of those who desire or who are forced to extend their boundaries.

This waste, the waste of national opportunity, is that which our political and civic life should aim at avoiding; which our schools and colleges, our Universities and scientific institutions, our Parliaments, should take into account, so that the challenge of our right to occupy, when it comes—and it cannot be long delayed—will find us developed and prepared, ready to make that sacrifice of life and property through which alone, in the world's present stage of ethical development, we can hope to avoid disaster to our national existence.



WHAT IS THE I.Q.?

By

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IN 1908 Dr. Alfred Binet and his colleague, Dr. T. Simon, gave to the world a new method of measuring intelligence, based on the principle of age gradations. By taking a number of promiscuous tasks of increasing difficulty he set out a "mental footrule" whereon the norms of average achievement for each year were registered. Thus the average child of three should be able to distinguish the main parts of the body and point to them on request, while at the age of seven the ability to distinguish between "rightness and leftness," and the application of these differences to his left and right sides should be readily made. Immediate memory or "memory span," as tested by the ability to repeat sentences or sets of digits of increasing length, was another type of task. The higher end of the age scale was marked by the inclusion of questions demanding powers of abstraction; the comprehension of a moral situation, a differentiation of qualities of objects and the ability to define abstractions, were types of this form of exercise.

Once the position of average age achievements was fixed on this scale of intelligence, the examiner who used it was enabled to say with certainty that certain children were normal in intelligence, while others lagged behind, and still others were accelerated in relation to their "birthday" or chronological age. In the latter cases their "mental ages" as found by the intelligence scale method, differed from their chronological ages. Let it be supposed that such measurements be expressed as follows:—

Name.	Chronological Age.	Mental Age.
Frank Jones	9 years	9 years
William Smith	12 years	9 years
John Brown	7 years	9 years

Though the chronological ages differ so widely in these individuals, yet, in so far as native intelligence and comprehension of a situation goes, they could well be grouped in the same school grade for instruction except for the fact of unequal development.

According to the Binet method it is necessary to mention the two age factors in discussing an individual's degree of intelligence. Such a measure is not conveniently reduced to

a plus or minus factor, for, as the years pass, it is found that such differences are not only maintained, but that the gaps tend to increase up to the period of adolescence. In short, the difference is not a fixed excess or deficiency, but rather a ratio based upon chronological age. If, then, our previous subjects were remeasured three years later, in 1921, the respective years would then read:—

Name.	Chronological Age.	Mental Age.
Frank Jones	12 years	12 years
William Smith	15 years	11½ years
John Brown	10 years	13 years

If these and the preceding results be reduced to a ratio based upon the relation of chronological age to mental age, then they appear as:—

Name.	1918 Results.	1921 Results.	Ratio.	Percentage.
Frank Jones	9/9	12/12	1.00	100
William Smith	9/12	11½/15	.75	75
John Brown	9/7	13/10	1.30	130

Professor William Stern, who first used this measure, styled it the "Mental Coefficient or Mental Quotient."

In America the work of Binet and Stern was developed by Professor Lewis Terman into the Stanford Revision of the Binet tests. He revised and extended the original scale, and added tests to the higher end in order to measure beyond the original highest age, that of fifteen years. Terman found that the curve of intelligence-growth tended to show an increase up to the age of sixteen chronological years, when it "flattened" and gave no further rise, behaving after the fashion of that of physical height. It is therefore a paradox to speak of a mental age beyond that of sixteen years, yet tests must be available to measure the supernormal development of such subjects as No. 3. Terman got over the difficulty by styling the tests those for a "superior adult," but for calculation purposes the tests are evaluated on exactly the same principle as the tests for mental ages up to sixteen years. Terman styled the measure of intelligence thus obtained the "Intelligence Quotient"—generally abbreviated to I.Q.—a far better descriptive term than that of Mental Quotient.

Since intelligence ceases to develop after sixteen, it is obviously unfair to handicap those above this chronological age in calculating their measurement of intelligence, therefore the method used in finding the quotients of such subjects is to regard them as if their chronological age was still sixteen years. If the previous subjects, for certain purposes, should be re-examined in 1929, the results would be as follows:—

Name.	Chronological Age.	Mental Age.	Ratio.	I.Q.
Frank Jones	20 years	16 years	16/16	100
William Smith	23 years	12 years	12/16	75
John Brown	18 years	Superior Adult	19+/16	119+

While in the main the method of the I.Q. appears to afford a correct estimation of the efficiency of an individual's intelligence, it must be admitted, even by its most earnest advocates, that there do exist some few cases where conditions of development are abnormal. Attacks of illness or periods of severe emotional stress tend to operate as such factors of disturbance. As a result the I.Q. cannot be a constant ratio, but in the light of their history such cases are generally explicable. But, where on the other hand conditions of development are normal and uneventful, then the I.Q. is looked upon as a constant and a reliable indicator of general intellectual status and efficiency.



EDUCATIONAL IMPLICATIONS OF THE I.Q.

By

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IN the movement of Education towards the status of a science, there has been a persistent striving after an objective standard, not always a conscious or deliberate striving, but powerful all the same. It is becoming increasingly recognised among writers on Education that there is a disturbing lack of finality in their results, that there is a disquieting absence of agreement, that there is in the literature of their subject an unwholesome atmosphere of mere opinion. Even to-day it is not quite absurd to repeat the old statement that any pronouncement by an authoritative educationist can be met by a direct contradiction from the works of some other educationist of equal authority. It has to be admitted, indeed, that the subject offers a field specially favourable for controversy; but the quarrels among educationists subtend too big an angle in the mind of the intelligent lay reader, with the result that his attention is directed to points of difference at the expense of points of agreement. It is not sufficiently realised that in Education there is now a great body of established truths that are of general acceptance among the experts. The fact of their acceptance removes them from the interesting arena of controversy to the useful but dull sphere of accepted doctrine that has to be taught in the ordinary course to neophytes. Accordingly, we hear little about them, and the attention of the public is directed to the more interesting and picturesque matters that are still in dispute. In Education we are nevertheless reaching the stage at which we can speak like the doctor, the lawyer, the divine, about "the books." We too are now claiming to have behind us an organised body of doctrine to the volumes embodying which we can appeal as our "authorities."

Even as we make the claim, however, we have an uneasy feeling that it will not be generally granted. There are critics who are willing to accept Dr. Johnson's view that all there is to be known about Education has been known long ago, and are inclined to add "and that was not much." But the nobler sort are willing to admit that there appears to be the possibility of reaching in Education something approaching a science. These are impressed by the fact that

within the past few years there have appeared at least six separate works in English bearing the title *Principles of Education*, while there is quite a library of works bearing titles that at least suggest a scientific basis. Prof. T. Percy Nunn's recent work on *Education, its Data and First Principles*, not only claims scientific standing, but goes far to justify the claim. We are indeed ripe for an authoritative work on *The Canons of Education* which will gather to a focus all the accepted educational principles, and organise them into a systematised unity. Something of this kind was attempted by the late S. S. Laurie in his rather pedantic *Institutes of Education*. But he was before his time, and did not have a sufficient basis on which to build. The book is too metaphysical, contains far too much private opinion, and indeed illustrates in a rather startling way the need for an objective standard.

In educational thinking the feeling after such a standard has followed many lines, among which three stand out prominently. Very naturally the first attempts laid violent hands upon the cognate subject of Physiology. The body supplied concrete material on which mechanical appliances could be directly used. The so-called law, associated with the names of Weber and Fechner, gave much encouragement to the seekers after an objective standard, and led them on to the invention and use of various instruments that seemed to pave the way for the establishment of reliable outside standards. Whatever can be dealt with in terms of time and space has an attractive air of finality about it. Physiology lends itself to expression in the language of physics. The ergograph, the aesthesiometer, the tachistoscope have a convincingly impartial air about them, and are apt to deceive the unwary into the belief that they deal with psychological data at first hand, whereas their evidence does not get beyond the range of the physiological—except by way of analogy. It has to be admitted that this analogical reasoning is often of great value; but it does not lead to the establishment of an objective standard.

The second bid for objectivity is made by the statistician. So long as we are able to express ourselves quantitatively, we are apt to think that we have freed ourselves from the trammels of the subjective. Formulæ of all kinds are particularly gratifying to the student who is anxious to get beyond personal impressions and to reach views that are of universal application. He is apt to think that there is safety in numbers, and even those who seek to maintain a scientific attitude incline to rely upon the mutual-correcting-of-errors involved in

dealing with large quantities. Critics point out that there is no reason to suppose that errors will neutralise one another. There is an equal chance that they will reinforce each other. Still, many theorists have the view that, somehow or other, if you take a sufficiently large number of cases, things will shake themselves down into an order that can be used as a basis of calculation, and thus they get at a "sort of an" objective standard. The writers who oppose this view, who condemn rough-and-ready methods with an enormous number of cases, and who recommend a few cases thoroughly treated by highly-trained observers, are no better off in the long run. For both schools are liable to the same error—the neglecting of the subjective element. In the ultimate resort, the data of the statistician have to be provided by the judgments of individual observers. No doubt the correlation formulæ of Prof. Karl Pearson and Prof. Spearman are useful in the highest degree, and supply us with a means of standardising results, but after all the matter to be correlated has been obtained by individual observers who have of necessity imported into the matter their subjective contribution.

A third attempt starts with the endeavour to discover, somehow or other, an ultimate element in soul-activity that may be dealt with by itself without bringing in any extraneous elements at all. In dealing with the problem of soul activity, Prof. Spearman believed he was able to separate out a *general factor* that might be called intelligence, and could be treated as something different from the various specific activities of the soul. This he represented by the letter *g*. By and by, Dr. E. Webb analysed out another general factor that represents, perhaps not ability in general, but certain purposiveness and tenacity that have a great deal to do with the successful functioning of the soul. This he labelled *w*, and in turn Dr. Maxwell Garnett came along with still another general factor represented by *c*, and corresponding in a general way to what is commonly called cleverness. It is clear that we have here the beginning of a new set of faculties ready to take the place of those banished by Herbart and his followers. The tendency to hypostatise is so engrained in human nature that there is nothing surprising in this recrudescence of the faculty psychology. There is, indeed, something to be grateful for in the proposed new set of general factors, since the investigations of these writers have tended towards clearness of thinking in a very obscure field. But they have not led to the elimination of the subjective element. The old-fashioned conception of the Laws of Thought as Thought had already got as near this elimination as we are likely to attain. But they are so abstract in their nature, and so

wide in their application, that they hardly help us in dealing with the activities of the individual soul. We want something that will apply to the individual here and now present. In other words, the Laws of Thought gain their apparent objectivity at the expense of losing touch with the individual soul that exemplifies their working.

The practical need of the educationist is some test that can be applied to the individual pupil in such a way as to discover his possibilities, classify them and gauge the extent to which they are educable. It is of the first importance to the educator that he should have a means of estimating the nature of the material upon which he is to work, and to test to what extent he has been successful in securing the ends he has set before him. The first object is the more fundamental, and has naturally been the first to engage the attention of the psychologists. When the municipal authorities of Paris made up their minds to do something for the education of the defective children of their city, they found to their surprise that they were not quite sure what constituted defect in the educational sense. Naturally, they appealed to the psychologists, only to find that these were in little better case than themselves, since the matter had been studied by only a few specialists. Prof. Alfred Binet, however, at once tackled the problem, and his crude series of mental tests was the result. Like all pioneers, he had to make his experience. So it is not surprising that he spent a good deal of time in discovering what any experienced elementary schoolmaster in England could have told him, that there is a high correlation between age and the development of intelligence. Under the old system of payment by the results of individual examination, there grew up a set of requirements that were found to fit more or less accurately the capacity of pupils at various stages. As a result of the application of these "code" requirements, teachers—and, to a less extent, also the general public—acquired a sense of the normal capacity of children at various ages. A "Standard III. boy" meant something quite definite as a description of a certain stage of mental development. What the elementary schoolmaster had learnt by experience, Prof. Binet learnt by experiment, and to a certain extent his investigations are worked on lines parallel to those of the Scotch and English Departments. As the result of his investigations, Prof. Binet gives in his *Les Idées Modernes sur les Enfants*, two tables, (i) the *Barème d'Instruction*. (ii) *L'Echelle Metrique de l'Intelligence*. The *Barème* is laughable in its crudity, but the *Echelle* has in it the potency of great developments. The essential distinction between the

two is that the *Barème* is intended to test attainment, while the *Echelle* limits itself to capacity. It is a fundamental principle of the new testers of intelligence to limit their field to intelligence as opposed to mere knowledge or acquired skill. Wherever possible, experience is discounted. A deliberate effort is made to eliminate from the test-material, so far as possible, everything depending on attainment, particularly attainment resulting from school activities. Unfortunately, it is not found possible to get rid of school influence altogether: it is so all pervasive. Since educators have deliberately chosen, particularly of late years, to arrange the curriculum to meet the needs of life, it naturally follows that school training permeates almost every field, and testers discover on all hands disturbing traces of scholastic influences.

It may be argued that, after all, school attainments are as much a part of real life as are attainments acquired outside school, and that intelligence may as well be tested by the one as by the other; and in the last resort the contention must be admitted, though it cannot be denied that it would be more convenient if we could in all cases deal with testing material that is of universal validity and can be applied with the same effects on all sorts and conditions of men. This, however, is manifestly impossible. It is found, for example, that the same tests do not produce quite the same results when applied to English and to American children. The mental content is sufficiently different in the two cases to lead to a slightly different response to the same stimuli. Still, a rapid approach is being made to a standardisation of intelligence at various ages, which, after all allowance for possible error has been made, supplies what may be fairly called a working objective standard, though not an absolute one.

The establishment of a norm of intelligence-development for a given age—what may be called “the mental age”—demands a definite correlation between the tests and the chronological age of the pupil. This is, to some extent at least, secured by the correlation of the tests with the general time element. To each individual test a time-value is allotted. There are, for example, six tests accepted as valid for each of the years from three till ten inclusive. It is accordingly assumed that each of these tests may be regarded as representing two months of what may be called “mental age.” The Binet tests have now been corrected and elaborated by Professor L. Terman, of Stanford University, California, and the results are known as the Standard Revision. The tests in this Revision are all equated in terms of time, and it is clear that the mental age of a child can be determined by crediting

him with the total of the time and values attached to all the tests that he is able to meet successfully. The plan adopted is to begin by crediting the child with the full number of years up to and including that in which he can meet all the tests successfully. Thus, if a child can do all the tests for the ninth year, but only five of the tests for the tenth year, he is credited with a mental age of nine years, and to this is added the time-value of any test he can meet for a later year. Thus ten months would be added for the five tests in the tenth year, and additional months for anything the child could do in the tests for any later year. The mental age thus obtained may coincide with the chronological age, or may fall below or rise above it. It is obviously of the first importance that we should be able to standardise the relation between the two ages, the mental and the chronological, if we are to have anything approaching an objective basis for our evaluation of intelligence. The simple expedient has been adopted of dividing the mental age by the chronological, and expressing the result as the *Intelligence Quotient*, represented by the symbol IQ. When the two ages coincide, the IQ is obviously represented by unity: if the mental age is the greater of the two, the IQ is unity plus a fraction; if it is the smaller, then the IQ is represented by a fraction. It is becoming customary to avoid fractions in stating the IQ, and instead of writing 1 or 1.12, or .95, to write 100, 112 or 95. While 100 is thus treated as the unit, various other numbers are accepted as standards for different recognised grades of intelligence. Anything between 90 and 110 is regarded as normal; between 90 and 70 represents dullness but not defect; anything below 70 is definitely defective, and includes in descending order, morons, imbeciles and idiots. Numerical IQ's have been tentatively assigned to each of these three grades, but this has been done diffidently, and experimenters are very willing to leave matters vague. On the upper grade, anything between 110 and 140 is regarded as highly superior—one cannot but resent this absolutising of a relative term—while round about 140 we are in the region of the genius or the all-but-genius.

The natural and indeed inevitable result of all this dabbling in figures is an atmosphere of definiteness, and certainty that is not justified by the facts. It is not surprising that the practical business man should seize upon the IQ as a labour-saving device. Already it is used in America as a standard in advertising vacant posts. "Boy of high intelligence required—IQ not less than 115." To this no serious objection need be raised, so long as we keep to the practical needs of life, and use this formula as a rough and ready, though not inaccurate, way of estimating general capacity. But when

scientific recognition is claimed for the IQ as an objective standard in Psychology, there is room for serious criticism.

To begin with, there is uncertainty about what it is that is being tested. The intelligence implied in the quotient is not the same thing as what is usually known as intellect. As such, intellect no longer holds the place of pre-eminence formerly accorded to it. The psycho-analysts on the one hand, and Henri Bergson on the other, have had much to do with the changed attitude of philosophical and psychological writers towards intellect. But the thing that Bergson attacks by opposing it to intuition, is not so much pure intellect as that form of applied intellect that is commonly spoken of as intelligence. In any case, the experimenters who have evolved the IQ, do not confine themselves to those operations that can be completely explained by direct reference to the Laws of Thought as Thought. The intelligence implied in the quotient formula is not quite of that degree of abstractness demanded by the formal logician. It inevitably involves a certain element of mental content. In spite of their best endeavours the testers have to depend upon the acquired knowledge of those to be tested. The laws of identity and excluded middle will not help the subject very much in a test involving the use of various-sized vessels so as to secure an exact number of pints of a given liquid, though no doubt these laws are very useful in *explaining* the means adopted to secure the desired end. Whatever be the nature of the general factor involved in the solution of the test problems, it cannot be analysed out in its purity; it necessarily and inevitably takes colour from the medium in which it works. The tester can, no doubt, get results that indicate the relative values of the general factor in a number of individual subjects tested, on the condition that all the subjects have the same degree of familiarity with the test-material used. Locke's view is here very much in point. He held that no two men could fail to draw the same conclusion from the same data, provided that (i) they both knew all the facts of the case, (ii) they were free from prejudice), (iii) they gave their minds to the subject. Though the first condition is the most important one from our present point of view, the second and third are not negligible, and certainly increase the complexity of the tester's problem.

The less philosophical writers on mental tests do not seem to trouble themselves unduly about these complications. They appear to be satisfied if they can analyse out in a general way the power of meeting new problems as they arise in real life. What the learned may call *nous* and the plain man *mother-wit* is sufficient for their purpose. The IQ is treated

as a quantitative co-efficient of this quality, but this co-efficient is vitiated if it is obtained without reference to the material on which it is tested. The subject matter of the test counts for something. The same native intelligence will act with different degrees of efficiency, according to the material with which it deals. Thinking has been defined as the process of applying means to ends, so long as this is done by the use of ideas. It is clear that thinking here includes and depends upon an acquaintance with actual facts, demands indeed a mental content. We cannot think *in vacuo*. It is with this limitation that it is possible to accept the intelligence as standardised in the IQ.

Whatever may be thought of Professor Spearman's arguments in favour of a general factor, there is little difficulty in getting plain men to accept the existence of "general intelligence" in the sense implied in the IQ. Practical people have always assumed the existence of a quality that, through lack of a more specific name, is commonly called general intelligence. There is nothing new in the idea or in the name: the contribution of the Stanford Revisionists is a means of measuring it. By a careful correlation of certain agreed-upon matter with certain time-units of development, it has been found possible to establish a rough-and-ready standard that is steadily winning acceptance. May we reasonably hope that we are on the way to such a formula as shall give us practically what we want in Education—an objective standard?

While admitting that on the practical side there is every chance that the IQ will turn out to be of solid value, there are certain considerations that make it very doubtful whether we shall ever be able to reach a unified standard that may fairly claim to be objective in the philosophical sense. The present scheme seems to take it for granted that differences in intelligence are quantitative, that we have all the same kind of intelligence, but have it in different degrees. Sufficient allowance has not been made for the claims of specialised intelligence. It is well-known that certain minds can do wonderful things in one direction, and yet are quite commonplace in others. The calculating boy is only an extreme case of an eccentricity in the distribution of special gifts that is quite common. It is possible for the IQ calculations to be altogether vitiated by the presence of such qualitative differences. A subject with really brilliant powers in one particular direction may be awarded quite a moderate IQ. We do not yet have a sufficient number of very high IQ's reported to be able to generalise from them. The New York boy with an IQ of 180, and the Dundee boy with an IQ of 200, do not

appear to have a violent bias towards any particular type of work. But in the case of a particularly high IQ that I investigated at Twickenham, I found that the little boy owed his remarkable IQ of 180.5 to his special skill in dealing with numbers. Apart from this particular gift, he gave evidence of nothing beyond what might be regarded as normal high intelligence. There does not seem to be any means of eliminating this source of disturbance, through qualitative differences. Probably the difficulty will be met by a system of grouping the tests according to the nature of the powers to be tested, but this will involve the abandonment of the general factor pure and simple. On the other hand, the practical value of the IQ may be actually increased, for it will then include a qualitative as well as a quantitative analysis, and will thus ease the work of those who have to fill posts or to guide candidates for posts.

While it is true that the IQ may be so modified as to increase its value as a practical guide for those who are responsible for making appointments, there is a disturbing force to be taken into account by those who wish to make practical use of the IQ. The psychologist is eager to keep the I.Q. as free as possible from outside entanglements; he wants it to stand for the general factor and nothing else. The plain man wants it to give him the maximum amount of information about the person concerned, in order that this person's activities may be anticipated and prepared for. The psychologist is content if he can determine the quantity of intelligence possessed by a given subject: the practical man wants to know what use the subject is likely to make of that intelligence. Already practical people are complaining that a high IQ does not guarantee successful work. But the psychologist never said that it would. The IQ only guarantees a potentiality. Successful practice demands other things in addition to intelligence. It is quite possible for two persons to have exactly the same IQ and to be of quite unequal efficiency in real life. The old fallacy of the dullest boys at school becoming the most successful in after life, tends to support the view that the IQ is unreliable, and the explanation comes readily enough that the anomaly may be accounted for by the influence of moral elements that are deliberately left out of account in working out the IQ. It is sometimes forgotten that it is of the essence of the IQ that it should be limited to the intelligence as such. But when practical applications come to be made, it is desirable that investigations should be made into other departments, notably into the moral aspects, by which is meant everything that is not included

under the term intelligence. When the moral is too closely connected with the ethical and the religious, there is a popular resentment against the very idea of having moral tests under any conditions whatever. It is forgotten that will, attention, interest can be regarded as moral elements. In any case they do not form part of the intelligence as such, though they have a vital effect upon the way in which the intelligence is applied. The development of the concept of the IQ is therefore likely to follow two distinct lines: one along the straight path that may possibly lead to such an abstract concept of intelligence as shall enable the psychologists to claim that they have won for Education an objective standard; the other along the crooked and cumbered path that will certainly lead to such an elastic yet accurate IQ as shall meet most of the Educator's practical needs, and thus be worthy to be described as at least a working objective standard.

Taking the IQ as it stands to-day, there is a further source of uneasiness with regard to the permanency of its validity. Is an IQ that is determined at the age of 12 valid when the person attains the age of 16 or 21? Obviously its value must be greatly reduced if it varies as the years pass by. If intelligence be a natural gift, there seems no reason why it should change in quality with advancing years. Certainly we are here upon controversial ground. No decision has yet been reached in the vexed question of the possibility of increasing the natural gifts with which we come into the world. When William James maintains that the natural memory which we bring with us from afar cannot be improved, he does so diffidently, and recognises that others hold different views. But he makes it abundantly clear that it is quite consistent to hold a natural gift to be unimprovable in itself and yet to hold that it is capable of being more and more skilfully used, so that at later stages it may produce results that were quite beyond its range at the beginning. All this is directly applicable to the intelligence, and many puzzling problems rise in consequence. In particular the whole scheme of mental testing implies a gradual increase in power from the first to somewhere about the sixteenth year. It is true there are certain plateaux representing periods during which there appears to be no development. The eleventh year is one of these, the thirteenth is probably another, and there is a vague impression that immediately before or immediately after the fifteenth year there may be a third. But this more or less regular development does not necessarily imply a change in the quality of the intelligence.

This may be illustrated by an argument sometimes used to show that the IQ is not constant for the individual. It is

well known that most of the education authorities of England have an examination each year open to the best pupils in the elementary schools who wish to compete for free places and maintenance grants at state-aided secondary schools. The average age of such candidates is $11\frac{1}{2}$, and those who are successful are selected as being fitted to undertake an advanced school course at the expense of the municipality and the state. The scheme works exceedingly well as a whole, but a few cases turn up each year in which candidates who failed to get a good place at $11\frac{1}{2}$ show such progress that at $12\frac{1}{2}$ or 13 they stand out prominently among their fellows, and by sheer force of merit make it necessary that arrangements should be made to find places for them in secondary schools. The "late-bloomers," as these exceptional pupils are sometimes called, appear at first sight to supply a fatal argument against the constancy of the IQ. If 18 months or a couple of years can change a below-the-average candidate into a much-above-the-average candidate, there does not seem to be much room for a permanent quotient. But it has to be noted that the scholarships are awarded on an examination, and not on a carefully-calculated IQ. No doubt the examiners have kept clearly in view the need to find out capacity rather than knowledge, and have expended great energy and ingenuity to make the test as little scholastic as possible: they have laid themselves out to find not so much what the pupil has done as what he is likely to be able to do. But when all has been said, the test is an examination one, in which actual school attainments count for a good deal in the decisions reached. Further, the material on which the "late-bloomers" make manifest, at a belated stage, their capacity, is scholastic material; it is by their excellence in school work that they finally attract the attention of the teacher. It may be that in their case the subjects studied after $11\frac{1}{2}$ proved more attractive than those studied at earlier stages. In some cases, coming under a new teacher may be a sufficient cause for the improvement. Changes in home circumstances, even on the purely physical side, may account for a rapid advance. Accordingly the "late-bloomer" is not a conclusive argument against the constancy of the IQ.

It is unfortunate that the IQ is not yet sufficiently old to supply direct evidence of its constancy over a long period. It is true that in most cases where the IQ of an individual has been calculated twice, with an interval of a year or more between, the results have been practically identical, though of course it has to be admitted that there is considerable difficulty in finding new test material that shall be of precisely the same degree of difficulty for a second test with the same

individual. There is no doubt that this problem of the constancy of the IQ for an individual will settle itself during the next few years. The amount of test-material is increasing so rapidly that even the cunning pupil-subject cannot keep abreast of it, thus vitiating the results, and the teacher will be able to test and retest in such a way as to come to a very definite conclusion on the subject.

At this point a very natural difficulty arises in correlating the IQ and the development of the intelligence. The child of five has not the same intelligence as the child of twelve, and yet, if the law of constancy holds, the same child at these two different stages must have the same IQ. What are we to understand, then, by the improvement that takes place between five and twelve? Increased mental content has no doubt a good deal to do with the greater skill with which the twelve-year-old manages his life. But there is more in it than mental content. There is actual development of intelligence, apart from the material upon which it is exercised. It is admitted that the boy of twelve thinks differently from the boy of five, whether we accept the logician's definition of thinking or the practical man's. The genetic psychologist is at hand to supply, if need be, a programme of the various changes that take place at different ages, but the mental tester is inclined at present to disregard the specific changes, and to concentrate on the general development of intelligence. He is inclined to adopt a quantitative rather than a qualitative standard. By and by, no doubt, he will have to take account of the work of the genetic psychologist, and modify his tests accordingly. In the meantime he has come to the conclusion that, with the exceptions already indicated, intelligence develops steadily from infancy to the end of adolescence, but there it stops. The exact point at which the stoppage occurs is not yet determined, and there is a group of psychologists who are unwilling to admit that there is a stoppage at all. But the tendency increases to accept "somewhere round about sixteen" as the period at which intelligence ceases to develop. The effect upon the calculation of the IQ is that in every case of a person over 16 the denominator of the fraction is 16, whatever the age of the subject may be. Some people get uneasy at the thought that the world is being carried on by the efforts of people with only a 16-year-old intelligence, but they make take comfort from the fact that, if the results of the testing of 1,750,000 soldiers of the United States Army can be applied by analogy to the population of the United States, then the work of the greatest Republic in the world is being carried on by an average intelligence a good deal junior

to that of sixteen. It may not be amiss to add that this calculation was made by Americans themselves, and not by any envious outside detractor.

Passing from this tempting suggestion of wide practical applications, it has to be admitted from our consideration of the subject that the whole problem of a general personal co-efficient, such as the IQ, bristles with difficulties and lures on investigators to make all manner of unwarrantable assumptions. The real danger of the situation lies in the satisfying atmosphere of certainty that accompanies a statement in mathematical form. Once a problem has been expressed in mathematical terms, it takes on a new aspect, rises to a more dignified plane, commands a respect to which it is not always entitled. There is a menace in Professor Titchener's claim that in the future psychological text-books will be as full of formulæ as are the physics text-books of to-day. So soon as a problem has been reduced to the form of an equation, we must hand it over to the mathematician to be worked out, secure that at this stage we may safely leave everything in his hands. But it is in the "stating" of the problem that the danger lies. We have not yet established an objective standard. The IQ at present is in a very unstable and precarious state, and nothing is more likely to hinder progress than to claim for it an authority to which it is not entitled. On the other hand, with all its defects and possibilities of error, it is a step in the right direction. Scientific progress always implies increased clearness of statement, and measurement is one of the most effective ways of securing clearness. No doubt, as we have already seen, measurement may prove so attractive as a clarifying process that it may obscure the need for clearness at earlier stages before measurement is possible. At these stages the danger lies in slackness of observation and in yielding to the temptation to use formulæ before our material has been properly sifted. The old quasi-metaphysical methods of dealing with educational problems still exercise a good deal of influence: the struggle between the old point of view and the new is not yet ended. At the present day quantitative methods are in the ascendant, the IQ being itself one of the most significant symptoms of the state of current opinion. At the back of this quantitative treatment lies such a promise of practical usefulness that conservative thinkers fear it may carry away the less critical investigators, and lead to ill-founded generalisations that will hinder real progress. But the very fact of possible practical applications will strengthen the claims of the IQ on the attention of the general public, while there appears to be quite a sufficient supply of

scepticism on the subject among the professional psychologists to secure a careful scrutiny of the initial processes on which it is founded. While the IQ does not in itself represent an objective standard in Education, it gives us the most hopeful indication we have yet had of our progress towards that much-desired end.



THE IDEA OF THE UNCONSCIOUS IN THE NEW PSYCHOLOGY.

By

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“UNCONSCIOUS” is at present a term with which to conjure. The purpose of this article is to consider whether there is a type of psychical or psychological fact to which the term is intelligibly applicable. In entering upon this enquiry, it seems necessary to draw attention to certain results of the analysis and description of mental process carried out in the name of traditional psychology. These results are familiar to all who have an acquaintance with the central development of psychology, but in many quarters the principle is receiving inadequate recognition that description and explanation of “normal” mental process is a necessary preliminary to explanation of those “pathological” facts in connection with which the theory of the Unconscious is so commonly invoked. Indeed, there are good grounds for the belief that theory or explanation of such abnormal facts is being hindered by the apparent ignorance, or, at least, disregard, of the results achieved along traditional lines.

Mental life, insofar as it is open to observation, reveals itself as a systematic process with its own peculiar form of organisation. It may be described in general terms as a continuous succession of moments of experience. The moment of experience is a span or stretch exhibiting a form of conscious organisation which is peculiar to itself. Further, it is continuous with preceding moments, what is known as conative continuity being normally maintained. In other words, the process moves without a severing gap towards its fulfilment, which may be described as the development and sustaining of system and organisation. It should be observed that the moment of experience alone is open to direct observation.

The examination of this continuous process may be undertaken from two distinct stand-points. We may take up our stand at the forward end of it and look back, so to speak. Under such conditions we have before us what has sometimes been called the field of consciousness, which consists of an assemblage of psychological elements or “states.” Within this “field” it is possible to distinguish states which are characterised by intensity and differentiation—in one

word, by clearness—from states which lack this feature, and which are described as “marginal.” The distinction corresponds to, possibly is conditioned by, the difference between attentive and sub-attentive consciousness. The well-known statement by Stout may be recalled: “The field of consciousness normally embraces a central area of clearly-apprehended objects and a marginal zone of objects which are apprehended indistinctly. Now it may not be true that all the clearly-apprehended objects are, therefore, attended to; but we may affirm that all other objects escape attention. To justify this statement it is necessary to define the nature of the indistinctness which is to be regarded as incompatible with attentive awareness. An object is indistinct in the sense required, when, though it is present to consciousness, it is not separately discerned. This is the case when it is apprehended only implicitly instead of explicitly. There is implicit apprehension when anything is apprehended in the act of apprehending a whole of which it forms a part, without being separately distinguished as a constituent of this whole. . . . Such implicit awareness is called *sub-consciousness*, as distinguished from clear or distinguishing consciousness; and throughout our mental life the contents of our field of consciousness are, to a very large extent, contents of the field of sub-consciousness, which are indeed present to the mind, but not separately discerned.”¹ This conception, which is familiar to psychologists and need not be further elaborated here, involves the idea of sub-attentive experience. It should, however, be recognised that the facts to which this idea points have, up to the present, been quite inadequately investigated by psychologists. The whole question of anoetic consciousness is involved, and this question has received only passing attention. Again, when the margin has been made the subject of enquiry it has been treated almost exclusively from the point of view of sensation; but emotional experience also has its “margin,” and when the intimate connection between emotion and conation is borne in mind, it may be affirmed that conation likewise has its “marginal” expression. Now, the phenomena upon which the “new” psychology claims to establish itself point to the need for a more thorough investigation of sub-attentive or “marginal” experience, particularly on its conative-affective side. For example, the disturbing “complexes,” insofar as they function, issue in experiences which may fittingly be described as marginal. The experiences in which the complexes issue do form part of the total experience of the

1. Manual of Psychology, pp. 128-9.

See also Symposium: Can there be Anything Implicit in a Mental State? Aristotelian Soc. Proceedings, Vol. XIII.

moment; the total consciousness of the moment is affected by them; it is disturbed, or its normal process of organisation is, to a greater or less extent, interfered with. The success of the methods employed in the discovery of the "complex"—the word-association test, for example—demands this assumption. Here, I would suggest, there is need for careful and accurate description of the facts before any attempt at explanation is even legitimate. Apart from the general question of the precise nature of these marginal experiences, there is one particular problem raised by observed pathological phenomena. Under ordinary conditions, the sensations and affective impulses which are sub-attentively experienced may be brought into the centre of the field. This is not so in abnormal cases. The disturbing, interfering marginal experiences, in such cases, remain elusive to attentive consciousness. They cannot, by normal means, be brought into the centre of the field; they affect the total experience of the moment, but they cannot be separately discerned and developed. How is this to be explained? The question here raised will assume a different form if we consider the process of experience from another point of view. Not only will the question assume a different form, but it will also bring us face to face with the idea of the unconscious. To that point of view we now turn.

Let us examine the mental process "longitudinally"; that is to say, let us regard the thoughts, feelings and strivings which enter into its texture, not as states but as functioning members of the process of organisation. From this stand-point experience presents itself as a self-directing development. As Professor Mitchell has expressed it, the action of the mind begins with an "occasion" which may range from a physical stimulus to the most highly abstract thought; and the action consists in the development of the occasion. The whole development is in the direction of cognitive, emotional and practical satisfaction. It is impossible, within the necessary limits of this article, to describe even in outline the nature of this development, much less to attempt its explanation. The one feature—involving matters both of description and of explanation—to which attention may be directed is that, while the present moving moment alone is open to direct observation, prior moments are still, in some form, operative in it. It is an essential characteristic of this type of process or development that the past enters into the present and is actively operative there. The past is "retained," at least in the sense that the achievements of earlier moments of the development do make a difference to the organisation and development going on in the present moment. There is one convincing

evidence of their active presence, namely, the questions which in face of the present "occasion" they prompt, the expectations which they arouse, the impulses which they initiate. For our present purpose the crucial question is: In what form are they "retained"? This is a question of explanation, as distinct from description, and requires that we pass beyond the facts describable from the point of view of introspection. In answering this question traditional psychology speaks of "traces" or "mental dispositions" or "faculties"; "unconscious" is the key word of the new. As an example of the former type of explanation, MacDougall's theory of mental dispositions may be recalled. Distinguishing sharply between mental structure and mental process, he has formulated the hypothesis of mental dispositions or structural units. These enter into systematic connection with one another, and in their unity constitute the mind's structure. Process alone is conscious, but behind the conscious process is this systematic structure. It is behind in the sense that it explains the process; to its functioning conscious process is due. It is behind in the sense also that it is, in principle, inaccessible to introspection, and therefore unconscious. It is, I think, true to say that those who hold this and similar hypotheses have not passed far beyond analogical descriptions in their accounts of the units which they assert to be structural. Their analogies are drawn at one time from the realm of physiology, at another from descriptive psychology. This failure to convey any clear idea of the nature of the structural units may be due to the initial too sharp distinction between what a disposition *is* and what it *does*. However that may be, it must be admitted that traditional psychologists have not devised any generally agreed upon method for the discovery of the nature and system of the explanatory dispositions.

The situation is fundamentally worse when we turn to the new psychology and its theory of the Unconscious. For not only is no light thrown on the nature and order of the constituents of this asserted realm of psychical fact, but the possibility of revealing its nature is excluded, since it is habitually regarded as the store-house of "experiences" minus the feature of awareness. Even so cautious a thinker as W. H. R. Rivers¹ speaks of "the experience which has become unconscious," and Dr. Ernest Jones² writes that unconscious processes "present all the attributes of mental ones, except that the subject is not aware of them." And in the literature of the new psychology generally we are referred to unconscious

1. *Instinct and the Unconscious*, p. 15.

2. *Papers on Psycho-Analysis*, p. 121.

"desires," "motives," "wishes," "fears," "thoughts," "memories," etc. The whole mechanism of the unconscious which Freud has supposed is constructed on the analogy of conscious mental process.³ It is true that when Rivers speaks of the unconscious he restricts it to "experiences" which are not capable of being brought into the field of consciousness by any of the ordinary processes of memory or association, but can be recalled only under certain special conditions, such as sleep, hypnotism, the method of free association, and certain pathological states. (A similar restriction is implied in the Freudian distinction between the "Fore-conscious" and the "Unconscious.") But, without questioning the value of such a restriction, we must insist that there is an easy and fatal disregard of that question which is all-important for psychological theory, namely, as to the form and order in which the "experiences" exist in the "Unconscious." With no sign of misgiving, the order and processes discovered in conscious process are simply transferred into this realm, the only, or the main, differentiating features being absence of awareness, and incapacity on the part of the "experiences" to enter into the field of consciousness.*

The error of this procedure becomes obvious when full account is taken of what we find in that form of mental process which is open to direct observation. For it is possible to detect the entrance of what is "retained" into the texture of conscious process; and what is detected makes it clear that, whatever may be the nature of the constituents of the Unconscious, it is simply a mistake to think of them as experiences stripped of awareness. Take first the case of perceptual experience; and let us consider Stout's analysis. He adopts the view that the explanation of mental development requires the supposition that experiences leave behind them persistent after-effects, and that these determine the nature and course of subsequent process. Admitting that this is so, we have to ask: In the course of perceptual process *what is reproduced*; that is to say, what enters into the present moment of experience as a determining factor due to the after-effect? Observation shows that the trace or after-effect itself is not *reproduced*. It simply persists or is retained. Neither are the specific items of sensation or mental imagery which have contributed to form the trace reproduced. What, then, is reproduced? It is, as Stout puts it, an indefinite and not further describable experience which may be called an imageless presentation.

3. Rivers suggests a Biological analogy: See appendix v. of *Instinct and the Unconscious*.

*In this connection Jung's procedure is a notable exception. See, e.g., *Psychological Types*, p. 615.

This amorphous presentation is capable of being precipitated, so to speak, into specific, clearly defined images; but at the moment when we first detect its presence in the conscious process, it is a vague and elusive, though nevertheless efficient factor in the development of that process. (See also Professor Mitchell's treatment of the experience of taking for granted: *Structure and Growth*, Lect. XII., sections 3-6). This amorphous presentation—and observe that it is open to direct observation—is not itself the trace conditioned by earlier experiences, but rather a factor in conscious process due to the nascent excitement of such a trace. If, then it is so distinct in nature from the specific experiences which conditioned the trace, is it not positively and unpardonably misleading to speak of the contents of the unconscious as if *they* were such experiences stripped of consciousness?

This conclusion is confirmed if we consider the results of the remarkable analysis of intellectual effort carried out by Bergson.¹ In all such effort he discovers what he terms a "dynamic schema." This organising "idea" is a distinguishable type of mental factor. It is neither an image nor an extract got from the images by a process of impoverishment. It may be worth while to quote Bergson himself: "It is as a function of real or possible images that the mental schema should be defined. It consists in an expectation of images, an intellectual attitude intended sometimes to prepare the advent of one definite image, as in the case of memory, sometimes to organise a more or less prolonged play among the images capable of inserting themselves into it, as in the case of creative imagination. . . . Present and active in the work of evoking images, it draws back and disappears behind the images once evoked, its work being then accomplished. . . . For a flexible mind, capable of utilising its past by bending it back along the lines of a present experience, there must, besides the image, be an element more supple than an image, always on the point of being realised into images, but always distinct from them. The schema is nothing else." Here again, then, the disparity between the "retained" or "unconscious" elements and the clearly defined factors of conscious process is emphasised by the peculiar character of what may be called the intermediary between them.

A similar conclusion follows from consideration of the effect, in conscious process, of emotional traces or dispositions. But the limits of space forbid such an analysis.

The type of fact to which the preceding considerations point—the imageless presentation, the organising schema, the

1. *L'Effort Intellectuel*: *Revue Philosophique*, Jan., 1902.

emotional tendency—might well be said to constitute the content of the "Fore-conscious." In normal circumstances, by mental effort, this type of fact leads to the recall and recognition of past experiences. The facts upon which the theory of the Unconscious, in its most recent form, rests, have made it clear that under certain conditions normal effort fails. The clue given cannot be followed up; past experiences cannot be recalled and recognised. Psycho-analysis claims—and the claim is not here disputed—that it has evolved a technique by means of which it can induce such recall and recognition. The important question for theory is to explain the failure, in abnormal cases, to recall. I am unable to see how, at any point, the theory of the Unconscious, as it is presented, for example, by Freud and Rivers, has contributed, or is likely to contribute, to such explanation. The powerlessness of the theory lies in the fact that it presents the unconscious as too nearly an imagined duplicate of the conscious.



THE PSYCHOLOGY OF IDIOSYNCRASY.

By

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IN the experimental study of the effects of drugs on the mental and motor efficiency of human beings, numerous factors have been shown to act as partial detriments. Among these, the size of the dose, the mode of administration, the body weight of the individual, previous drug habits, and the momentary state of the organism with respect to such features as fatigue, sleep, practice, and the presence of food, have been most commonly pointed out. Along with these there has always been occasion to stress another factor, commonly indicated, in the literature of pharmacology, as "idiosyncrasy." Practically every experimental study contains a paragraph in which it pointed out that "individual differences are the rule."

What underlies these individual differences in susceptibility to the effects of drugs is pretty much a mystery, and is acknowledged to be such in the texts of pharmacology. In recent years a certain amount of speculation has been indulged in, in terms of "endocrine status," but no definite information has been presented. The results of a recent study of the effects of moderate doses of alcohol on six adult male subjects suggested that the general competence, or what is generally called the "intelligence" of the individual, is an important factor in this idiosyncrasy. This led to the re-examination of previous experimental studies, and to the discovery that in these cases also there is a definite relation between competence and susceptibility. This result is so interesting that some of the details may be worth considering.

In these alcohol experiments, the results of which have not yet been published, the six subjects were found to differ very strikingly in susceptibility to the damaging effects of the alcohol doses on their mental and motor activities. Two of the men were affected by even the smallest doses employed. Two were not affected definitely by these smaller doses, but showed clear and measurable influence from the larger array of doses. And two subjects showed practically no effects from even these larger doses. The six subjects could easily be arranged in an "order of susceptibility" or "idiosyncrasy" for alcohol.

Such an order of susceptibility may then be compared with the relative standing of the individuals in other respects. Thus no relation appeared between susceptibility and age, previous alcohol habits, or pulse rate. Body weight was related, in much the usual way, and so were habits of physical exercise. But the most striking fact was the close negative relation between competence in the tests employed, and idiosyncrasy. A similar close relation was found between "learning ability" and susceptibility. Learning ability was determined by measuring the amount of improvement each subject was able to make in the tests, through the course of repeated trials, lasting over two weeks, with constant work at the tests throughout the day.

The tests used were those commonly designated by the following names—Steadiness, Tapping Rate, Target Co-ordination, Form-Number Substitution, Colour Naming, Naming Opposites, and Mental Calculation. In the following table are given, in the various columns, the subjects, their rank for susceptibility, their rank for final skill in the tests, and their rank for the amount of gain through practice. These are averages for all tests.

Individual.	Rank for Susceptibility.	Rank for Final Skill.	Rank for Amount of Gain.
A	1	6	6
B	2	4	5
C	3	3	4
D	4	5	3
E	5	1	1
F	6	2	2

The inverse relations are apparent. The two subjects who stand lowest in susceptibility (E and F) stand in first and second places in Skill and in Learning Ability. The two most susceptible subjects (A and B) are at the bottom of the list for Skill and Learning. The intermediate subjects for susceptibility are also intermediate for both Skill and Learning. This result is, moreover, found for each of the tests considered separately.

Of course results from six individuals and one drug cannot be generalised. But examination of previous studies in which the data are given in sufficient detail to compare individual records shows the same tendency. Thus in Kraepelin's early and fragmentary studies of fatigue, the most fatigueable subjects were most subject to the influence of alcohol. In a study of the effects of caffeine and of acetanilid on simple reaction times, using twenty subjects, Schilling gives data that make possible a similar comparison. I have worked over

these data, and in the case of both drugs it is found that the most susceptible subjects are those whose natural reaction times are inferior.

In another recent study, Carver has reported the effects of tobacco smoking on a number of subjects. In some tests no clear influences were made out. But in all cases in which there was definite tobacco effect (the effect being loss of accuracy) I find the same thing to be the case. Not only are "individual differences the rule." The rule is clearer than that. It is the inferior performer who is the susceptible individual.

In the same way I have re-examined the results of a previous study of my own on the influence of caffeine on an array of mental activities. Except in the case of the Tapping test, the same rule applies.

Now the tests employed in these studies are just such tests as are in common use in one connection or another for the measurement of intelligence. In so far as this is the case, we can restate the rule, making it read: "The susceptible are the stupid," both these terms being taken in a relative sense.

In a recently-published book on the "Functional Neuroses," I have reported the study of some twelve hundred men suffering from psychoneurotic complaints of sufficient gravity to impair their military serviceability. Two facts were very clearly shown in this study. In the first place, these men rated low in intelligence—two or three years lower, on the average, than the rating of the average soldier. They stood between the normal and the feeble-minded.

In the second place there was a definite relation between the degree of intelligence and the symptom picture. Those suffering from physical symptoms (Freud's "conversion hysteria") were inferior, by four years of mental age, on the average, to those showing more strictly psychic troubles (anxiety neurosis). The various diagnostic groups could be arranged in a hierarchy for mental age. The order, from lowest to highest, was Hysteria, Hystero-Epilepsy, Psychopathic Constitution, Neurasthenia, Psychasthenia.

These results seem not unrelated to those derived from the drug experiments. Both represent cases of susceptibility to the damaging influences of circumstances or stimuli. Both show a close dependence of susceptibility on inferior intelligence. If we consider along with these results the numerous studies on record in which it is shown that in the long run the mentally superior are also physically superior; that intelligence is positively correlated with personal beauty as judged by others; that in

the case of school children there is on the whole a close relation between general mental alertness and special artistic gifts such as musical ability, capacity for drawing, and mechanical dexterity; that physiological age and mental age go hand in hand; the general importance of the findings is clear.

"Idiosyncrasy," that mysterious pharmacological term, is seen to be but an evasive expression of the "quality of the organism." It is this organic or systemic quality that is responsible not only for drug resistance, but also for nervous health, for high intelligence rating, for physical superiority, and in general for what has come to be known as the "positive correlation of desirable traits."

Much has been made, in the past, of the protective role of intelligence in the adaptation of the organism to the conditions of its life—to external environment, to economic demands, to social expectations. But here we find intelligence as a sign of the organism's capacity to protect itself against its own infirmities—to preserve it from neurotic involvement and from toxic influence. Much needs yet to be done in the analysis of "idiosyncrasy," but that "general intelligence" or the organic and systemic factors that underlie intelligence are therein involved seems evident.

Pharmaco-psychology in the early days of Kraepelin was looked upon with great expectations. But in more recent years there has been the tendency to depreciate the results of the drug experiment, so far as concerns its contribution to the mechanism of mental process. It is possible that the value of the drug experiment in experimental psychology is just beginning to be realised, and the present results are offered as an indication of the type of strictly psychological contribution that such technique may yet be able to contribute.



PSYCHO-ANALYSIS IN RELATION TO MEDICINE.*

By

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ALTHOUGH it is some years since Sigmund Freud enunciated his theories regarding the unconscious and the Psycho-Neuroses, and formulated his doctrine of psycho-analysis, it was not until the mass of material produced by the war brought the medical profession face to face with numerous psychological disorders that his theories were seriously considered.

In the early days of the war many members of the medical profession attempted to explain the hysterical disorders—"shell-shock," etc.—along physical lines; but these attempts hopelessly failed. Pathologists imagined that they could see small haemorrhages in the brain, resulting from shell-concussion, and they stated that these haemorrhages caused the paralysis, etc., in such patients; but even the pathologists to-day admit that the symptoms of hysterical paralysis, mutism, aphonia, anxiety conditions, etc., are of psychological origin.

The hostility towards psycho-analysis in particular as a method of treatment of such conditions was almost entirely due to the fact that the originator of the theory—Freud of Vienna—taught that the essential cause of all psycho-neuroses was some disturbance of sexual function; and further, that these disturbances of sexual function often went back to the first few years of life and implied a sexuality of the infant, which became a special ground for the hostility and ridicule of the opponents of his theory.

Freud and his followers have still sought to explain the war neuroses as arising from the sexual basis, and although many will admit of such a basis being responsible in some cases met with in civilian practice, they are not prepared to agree that all war neuroses arise from sexual causes.

Many observers, after dispassionate study of the psycho-neuroses of warfare, came to the conclusion that in the great proportion of these cases there is no reason to suppose that the conditions arose from abnormalities in the sexual development of the infant, but that they were explicable rather as the

*Read before the Australasian Association of Psychology and Philosophy, at its First General Meeting, held at Sydney University, May 19th, 1923.

result of a disturbance of another instinct even more fundamental than the sex instinct, namely, that of self-preservation; an instinct which was brought forward so prominently under war conditions. However, as a general result, Freud's theories, especially regarding the mental mechanism underlying psychological processes, have been largely accepted, and are utilised to a more or less extent by most psycho-theraputists to-day.

Medical men now realise that the successful treatment of a majority of patients suffering with mental and bodily disease depends largely upon the practical study of individual and social psychology. The medical practitioner, therefore, must have a very wide understanding of human nature and of human conduct. We can only judge a man's mental state by what he does and what he says, and by the bodily expression of his emotions and passions. Yet some highly educated men may be as children in the understanding of their fellows. It is experience of the world from many and varied points of view that is necessary, combined with an intuitive sense. Our object, therefore, should be to develop these qualifications in our medical practitioners. Medical students are compelled to spend years in acquiring their knowledge of the structure and function of the human body, but up to the present, at least, they have been given little or no instruction in the activities of the mind, which the body subserves. Sir Frederick Mott—perhaps the most eminent Pathologist alive—says that “no one would dream of teaching pathology without a preliminary course of physiology; yet every doctor is daily called upon to treat neuroses and psychoses with inadequate training. If medical students are taught psychology it should be a more real and vital psychology, based upon behaviouristic, biological, physiological, psycho-pathological and sociological foundations, and the teacher should be a medical man who has acquired a thorough theoretical and practical knowledge of these subjects.”

It is most advisable that psycho-neurotic conditions should be treated by medically trained men, because the very practice of medicine brings men into contact with human nature perhaps more directly than any other profession, and therefore the medical man has the opportunity of acquiring the necessary understanding of human nature more than the lay psychologist. Moreover, before deciding upon the type of treatment which should be given to any psycho-neurotic patient, there are several factors which must be very carefully considered:

1. The inborn foundations of character, disposition, etc. of the patient must be understood.

2. The social factors. The story of the patient's home life, education, recreation, etc., must be investigated.
3. An intelligence quotient should be worked out in order to ascertain if any degree of feeble-mindedness is present which would obviously predispose to the formation of a psycho-neurotic condition.
4. All physical factors which may have led up to or assisted in the production of a psycho-neurosis should be investigated. The pre-natal history, the story of early growth and development, of physical illnesses, etc., must be thoroughly gone into.
5. The possibility of the condition being due to a disturbance or lack of balance of the secretions of the endocrine glands must be thoroughly investigated. The inter-relation between psychological disturbances and the secretions of the ductless glands is of extreme importance. For example, fear and anxiety easily upset the delicate balance of the internal secretions of the thyroid and adrenal glands in particular, and on the other hand a primary disturbance of these glands will sensitise the patient in such a way that he would suffer greater physical distress from psychological stimuli.

In general, an intelligent understanding of the influence of mind on body and body on mind and its practical application must be obtained, and such a general understanding cannot properly be gained by anyone who has not been trained both in medicine and psychology.

The general types of treatment which are now used in psycho-therapy are mainly four, *Suggestion, Persuasion, Analysis, and Re-education.*

1. Suggestion is by far the most widely used method of treatment, not only in psychological conditions but also in physical states. It is obvious that patients suffering from disease are hardly likely to recover unless they have faith in the treatment given them, and therefore are more receptive to the suggestions made by the physician.

2. Persuasion is much more limited in its scope, because the patient is generally unwilling to accept a logical argument set up to oppose the theory which he holds as the cause of his condition. It is much easier for him to accept the opinion and suggestion given him by the physician whom he trusts without attempting logically to understand the rationale of them.

3. Analysis. Some form of analysis is generally adopted in any history-taking, and it is essential to understand the underlying condition before the treatment is applied. Therefore, analysis of some degree generally precedes treatment by suggestion and is again followed by re-education, which attempts to build up the patient's personality in such a way that he will not again re-act in a similar pathological manner under similar circumstances. But the term "psycho-analysis" should be restricted to the methods of analytical procedure initiated by Freud himself, and should consist of a very definite technique spread over a considerable time. Jung uses the term "Analytical physiology" for his method of analysis, but to the lay mind the term "psycho-analysis" seems to cover any form of psychological investigation. This loose use of the term should be strongly discouraged.

Freud maintains that his method of analysis in no way employs suggestion, and he endeavours to avoid any suggestion in the treatment. My own experience gained through undergoing analysis by a Freudian disciple convinced me that this aim is impossible. At the end of each session the summary made by the analyst of the material, free associations, etc., produced, prepares the ground for the associations of the next session and so leads on in the way along which all successful Freudian analyses should go. The dreams produced during such an analysis must naturally be colored by the analyst's remarks. All authorities on dreams agree that the material used in the dream is at least influenced by events of the previous day, and therefore as the analyst sees his patient each day in succession, the dreams discussed and the conclusions derived therefrom, form material for the dreams of the succeeding night and the analysis of the following day.

Dream interpretation is an important part of the technique of analyses used by both Freud and Jung, yet the interpretations given to the dreams vary very considerably.

Jung teaches that the dream indicates the unconscious desire of the individual, and it is along the line suggested by the dream that the patient should go if he is to achieve success in life. Freud, however, believes that every dream is a wish fulfilment.

The late Dr. W. H. R. Rivers, whose lectures on dreams have just been published, drew attention to the inadequacy of Freud's theory of wish fulfilment; to the exaggerated importance given by the psycho-analytic school to incidents in the earthly life of the dreamer, neglecting recent conflicts, which he said were more important as causal agents; and especially to the fallacies of the Freudian interpretations of symbolism,

particularly of sexual motives and symbols, which have been responsible for most of the opposition to the Freudian doctrine. Rivers believed that while the dream was essentially a form of regression to the ways of early life, the experiences upon which the dream processes acted were derived from the recent experiences of the dreamer.

Professor G. Elliot Smith has shown in the present volume of "Psyche" that the foundations upon which the theories of Freud and Jung regarding the interpretation of symbols have been placed are entirely false.

These leaders of the two great schools of psycho-pathology obtained their ethnological information second-hand from the writings of Sir James Fraser and Wundt, two authors deeply committed to the Bastian Taylor fallacy. Elliot Smith says:—

"Hence Freud, Abraham, Rank, and the rest of them began to provide the world with such striking demonstrations of reduction ad absurdum as 'Totem and Taboo,' 'Dreams and Myths,' 'The Birth of the Hero,' inter alia, and Jung to write about 'the collective unconscious,' and 'the phylogeny of symbols.' What renders all this speculation so obviously futile is that none of these writers has taken the trouble to go to first-hand sources for his information, and had he done so the baselessness of his pretended explanations could not have failed to become patent."

Unfortunately, many followers of the Freudian school have elevated Freud almost to the position of the Deity and any new doctrine which Freud himself may only tentatively propound they teach as if it were certainly accurate.

It is this attitude amongst Freudian psychologists which renders them most open to ridicule, for no doctrine can be accepted unless it will bear thorough scientific investigation and criticism. Many Freudian disciples therefore seem to lose all power of scientific questioning and lack critical interest in their work. William Brown, of Oxford, says:—"The really serious objection to be brought against the psycho-analytical school of thought is that it restricts itself unduly to the investigation of the instinctive bases of mental life, and in its theoretical formulation of doctrine fails to do justice to the nature of volition or other of the higher forms of mental activity."

In a conversation which I had with Professor William McDougall at Harvard, he acknowledged the great debt which psychology owes to Freud in working out the mental mechanisms, but he strongly disapproved of most of Freud's theories regarding the sexual basis for the neuroses. I found that the leaders of American psychiatry based their treatment largely upon the doctrines of Freud only as far as the mental

mechanisms were concerned. On the Continent of Europe the Freudian doctrine counts for little in most of the psychiatric clinics. In my own experience I have found a certain number of psychopathic individuals whose whole make-up seems to have been possessed of polymorph perverse sexual tendencies in their childhood, and such patients re-act well to Freudian analysis. But in general this type of patient is in the minority. However, it appears that Freud met many of this type in his experience amongst the out-patients of the hospitals of Vienna, and he drew his conclusions from the examination of such psychopathic material and extended them to explain the psychological make-up of more normal individuals. Most patients, however, met with in psychiatric practice re-act to a much more simple analysis than that required by the Freudian technique. However, a thorough understanding of Freud's method—preferably after having received analysis at the hands of a Freudian disciple—is of great value, because with this experience one can much more quickly carry out a simple analysis of many patients which do not require a longer investigation.

Most patients met with require readjustment of the causes of the conflict underlying their psycho-pathological state, and generally these causes are easily ascertained. The main point of the treatment then is the implanting of a new philosophy of life after having ascertained by analysis the weak points in the make-up of the patient.

The point of view of Dr. Rivers regarding psycho-analytical teaching is expressed in "Instinct and the Unconscious," as follows:—

"My own standpoint is that Freud's psychology of the unconscious provides a consistent working hypothesis to aid us in our attempts to discover the role of unconscious experience in the production of disease. To me it is only such an hypothesis designed, like all hypotheses, to stimulate inquiry and help us in our practice, while we are groping our way towards the truth concerning the nature of mental disorder. We can be confident that the scheme as it stands before us now is only the partial truth and will suffer many modifications with further research, but that it takes us some way in the direction of the truth seems to me certain."

Psycho-analysis after the manner carried out by Freud is therefore by no means the method of treatment adopted to-day by the majority of psycho-theraputists, although most will admit that Freud's work has done more than that of any other individual to extend our knowledge and understanding of psycho-pathological problems.

PHYSICAL SCIENCE AND OBJECTIVE REALITY.

By

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THE sterility of mediaeval science under its load of metaphysical speculation and the fertility restored by the return to experience, which in less than a century produced Newton's Principia, inevitably raised in the scientific world a distrust of metaphysics. Science and Philosophy, which had hitherto developed side by side, separated and followed divergent paths until it became generally believed that science is not concerned with metaphysics.

In a sense this is true. According to our modern views the aim of physical science is to formulate an ordered description of the phenomena of the physical universe, and in the formulation of such a description metaphysical questions may be ignored as irrelevant; for example, the Aether is equally satisfactory as a basis for description and co-ordination of electromagnetic phenomena whether we regard it as a mental concept or, alternatively, as an objective reality.

There has always been, however, an unfortunate tendency on the part of many scientific workers to avoid discussion of metaphysical questions, not so much by ignoring them as irrelevant to their own purpose as by tacitly assuming definite solutions. They have been apt to look on that scientific theory which provides a sufficient explanation of natural phenomena, as the only possible description, and then to proceed to the unconscious assumption that the concepts in the theory correspond to objective realities in the material universe. The discussions aroused by the Theory of Relativity provide modern examples of this tendency: many of the criticisms imply a belief in the objective reality of the aether, and many expositions of the theory suggest that some of its supporters have merely been converted from a belief in an objective space to a belief in an objective space-time fourfold.

The origin of the error appears to lie in a failure to realise that while Physical Science establishes the sufficiency of its description of the physical universe, it in no wise proves its necessity. This failure, in its turn, arises from two main causes: a false view of experiment and a lack of recognition of the large arbitrary elements involved in the development of physical theory. Although these are not wholly independent it is convenient to discuss them separately.

The usual view of an experimental result is that it is a definite fact of experience. That even the greatest minds are not proof against this error is shown by the fact that Helmholtz undertook experiments to prove the Euclidean nature of space. His method involved the assumption that beams of light are rectilinear, and, as Poincaré pointed out, his results could be interpreted in two ways; either space is Euclidean and light beams are rectilinear, or space is non-Euclidean and light beams are curved. The latter alternative could not be rejected on the ground that it was ruled out by optical theory, for that theory itself had been built up on the assumption of a Euclidean space.

This criticism emphasizes the true character of an experimental result as a possible but not a necessary interpretation of experience.

How largely the arbitrary element enters into the interpretation of experiment is revealed by consideration of the development of physical theory. An illustration may be taken from dynamics. Observations and experiments by Galileo and others were interpreted as revealing certain physical entities such as mass, force, acceleration connected by definite relationships. Newton and the mathematicians built up the theory of Abstract Dynamics, a branch of Pure Mathematics dealing with concepts corresponding to these physical entities and based on postulates corresponding to the relationship between them. Physical significance was attached to this mathematical theory, and its deductions were compared with the results of experiments: if necessary, discrepancies were reconciled by modification of either the mathematical theory or the interpretation of experiments and the theory, as Applied Dynamics, took the aspect of a description of the motion of physical systems.

The procedure illustrated by this example is typical. The main steps in the development of any physical theory may be summarized as follows:—

- (1) Preliminary experiment suggesting postulates for mathematical theory;
- (2) Development of a system of Pure Mathematics based on these postulates;
- (3) Interpretation in terms of Physics of the Pure Mathematics;
- (4) Reconciliation of discrepancies by modification of either the mathematical theory or the interpretation of experience.

It is important to notice the double possibility in the last step. In many cases experiments have led to recasting of

theory: in many others experiments have been interpreted so as to bring their results into harmony with existing theory. The choice of procedure has been dictated by convenience, not by necessity, and the final result is what Poincaré calls a product of unconscious opportunism.

In view of this fact the only possible criterion of the validity of any physical theory is consistency; logical consistency on the theoretical side, consistency in the canons of interpretation of observations on the experimental side, and agreement between the results of theory and experiment. Once a consistent scheme has been established it may be adopted as a sufficient description of the physical universe; but it cannot be legitimately looked on as a unique necessary description until the impossibility of some alternative consistent scheme has been proved. The fact that one scheme is simpler than another may be a good reason for its adoption for the sake of convenience, but it gives no guarantee that it provides an accurate description of objective realities: as Lagrange said, "Nature takes no heed of the difficulties of analysis."

Furthermore, it may be noticed that no argument for the necessity of any particular physical theory should be based on its power of prediction. The successful prediction of a previously unknown experimental result shows no more than that the theory remains consistent when the range of knowledge is somewhat extended: the fact that the theoretical extension precedes the experimental is quite irrelevant to the argument for its necessity.

Since physical science does no more than establish the sufficiency of its explanation of the physical universe there can be no philosophical justification for the unreflective assumption of objective realities corresponding to any particular concepts embodied in the accepted physical theory. This objection to such an assumption is of mere academic interest to the physicist as physicist, but there is the further objection that such assumptions tend to restrict the possible lines of development.

A striking example is found in the history of the Theory of Relativity. This theory really originated in the famous Michelson-Morley experiment, first carried out in 1887. The essential parts of the mathematical machinery by which it was developed were already in existence at that date. The theory, then, might have appeared a quarter of a century before it actually did. A reason for the delay is to be found in the failure to criticize three metaphysical assumptions underlying the Michelson-Morley experiment; namely, the assumptions—

- (1) Of the objective reality of the aether;

- (2) Of the absolute meaning of the term "length" as applied to material bodies;
- (3) Of the absolute meaning of the term "duration" as applied to events;

the last two being practically equivalent to the assumption of the reality and mutual independence of space and time.

The failure of the experiment to detect the velocity of the earth relative to the aether was merely explained away by means of an *ad hoc* hypothesis of a contraction due to the velocity. This procedure certainly gave rise to the valuable work of Larmor and Lorentz, but it was not until Einstein had examined critically the assumptions on which the theory of the Michelston-Morley experiment was based that the Theory of Relativity became possible. While the solutions of the philosophical questions involved were left open there were two possible lines of advance; the tacit assumption of solutions closed one of them.

The restriction on free development imposed by the assumption of the objective reality of certain concepts in physical science is balanced by no compensating advantage. Physical science is founded on experience and is continually subjected to the test of experience. In this experience the fundamental unit consists of the subject and object connected by the relation between them. A consideration of the isolated object may be of speculative interest, but it has no physical importance. The real question of importance for the physicist is the change of relation due to change of the position or the motion of the object relative to the subject. The most satisfactory method of discussing this question, without introducing the restrictions imposed by unexamined metaphysical assumptions, is to avoid attempts to isolate objects and to concentrate on relations, considered as functions of relative position and motion.

From this point of view it might be of interest to examine the Theory of Relativity considered as a means of determining these functions. A full discussion of the matter would be out of place here, but attention might be directed to one aspect of the question. In the first number of this Journal, Dr. Boyce Gibson quotes Reichenbach's view on the change in the object-concept brought about by the Theory of Relativity, and criticizes it in that it ignores a privileged position from which all relationships can be stated, namely, that in which the subject is at rest relative to the object. On the view put forward here it might be said, not that the Theory of Relativity changes the object-concept, but rather that it replaces the object-concept by the relation-concept. As stated above, the relation is to be determined as a function of relative position and

motion. The privileged position mentioned by Dr. Boyce Gibson plays its special part as the position near which the relation and its changes with change of position and motion are most easily observed. From the values of the relation function and its rates of change in the neighbourhood of this privileged position, its general expression is determined.

The contentions upheld in this article may be summarized as follows:—

- (1) Physical science establishes the sufficiency but not the necessity of its description of the physical universe;
- (2) There is therefore no justification for the uncritical assumption of the existence of objective realities corresponding to the concepts embodied in scientific theory;
- (3) Such assumptions are apt to restrict free development;
- (4) From the point of view of the physicist the most satisfactory interpretation of the Theory of Relativity is that which regards it as a description of relations, not as an improved description of objects.



THE PRESENT RELIGIOUS SITUATION.

By

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“**H**ERETICAL” and “Modernist” are question-begging epithets which have little meaning when applied outside the restricted sphere of theological controversy. Even within that sphere they are no longer used with the same confidence as of old. A Scottish theologian astonishes his countrymen by telling them that “the hope of Christianity is heresy.” A Bishop of London sits on the stool of repentance and confesses (apropos of “Christian Science”) that “the Church has to learn from heresy to-day, as it had learned in time past. There was not one single heresy that had ever existed, that was not recalling the Church to some forgotten truth.” Verily, the heretics have not lived and suffered and died in vain. Modernism, apart from its use as a favourite ecclesiastical brickbat, is a name for a confused and confusing medley of opinions, including the various and varying opinions of Mr. H. G. Wells, who has perhaps done more, in his writings on religion, to contribute to the general muddle-headedness of popular thought, than any other writer of equal notoriety. It seems impossible to define Modernism, or even to describe it, except in vague and negative terms. Thus, Canon Papillon (*Contemporary Review*, Sept. 1922) can tell us no more than “it is a temper or tendency—the temper of an age or period of progress, a new point of view about old truths, a fresh spiritual outlook—It is not a faith nor a system, nor a doctrine. It formulates no new creed . . . the old truths are being presented afresh, the old formularies take on a different meaning. The faith is not changed, truth is unaltered, but we are changing our point of view.” This is interesting, but not specially enlightening. It is what one might say of a landscape, looked at from a new point of view—with one’s head upside down.

The religious situation has certainly changed. In former times religion claimed empire over the minds and consciences of men. There followed disputes between the churches, and competition between creeds. These now seem unimportant (internecine struggles which hurt no one but the parties themselves) compared with the greater problem, which concerns the very existence of religion itself. “Every religion begins as an intuition, and ends as an institution,” and churches as

institutions are, we are told by sociologists, fast becoming organs without useful functions, survivals of the past. Theologies have ceased to have value as knowledge, whatever other value they may have had in earlier ages of human ignorance. At the best they are regarded as harmless excursions into the regions of the unknown and the unknowable. And since churches apparently cannot get on without theologies, when the latter go, the former will follow, having lost the reason for their existence. Lastly, the value and permanence of religion itself are questioned. We are informed by the latest Psychology and Sociology, that, although religion may continue to exist as a fact of the individual consciousness, it will not endure as a social fact, a fact of the collective consciousness. It arose and continued under special conditions of the human spirit, and in response to certain social needs. It was a product of the human spirit, a not inglorious product, yet still a product and a transitory product, destined to disappear with growth of knowledge and advance of the social conscience. Humanity can look on with tranquillity at the gradual disappearance of religion. The time of its passing has come. Be the church "worldly" or "unworldly," the world will cease to have use for it. It will be replaced by something better and more efficient—the State with its multifarious agencies covering the whole life of man, a humanitarian conscience, and an enlightened secular morality. Thus far the latest psychology and sociology. The latest politics sound a still bolder note. The leading Socialist newspaper of Berlin appeared on Christmas morning with this legend printed in large letters across the top of its front page. **WHAT WE WANT IS NOT SALVATION, BUT REVOLUTION!** What the ordinary "man in the street" wants is more difficult to discover, for he speaks with many and discordant voices. The future historian will probably derive his knowledge of the attitude of that many-headed individual from the evidence of the popular fiction of our day. We may not, therefore, go far wrong if we quote from the most widely circulated novel of the season. "The old revelation was good for the old world, and suited the old world, and told in terms of the old world's understanding . . . We want a new revelation in terms of the new world's understanding. We want light, light. Do you suppose that a man who lives on meat is going to find sustenance in bread and milk? Do you suppose that an age that knows wireless is going to find sustenance in the food of an age that thought thunder was God speaking? Man's done with it. It means nothing to him; it gives nothing to him. And the churches, instead of giving him light, invite him to

dancing and picture shows. Light, light he wants, and the Padres come down to him and drink beer with him, and sing music-hall songs with him, and call it making religion a living thing in the lives of the people. Lift the hearts of the people to God, they say, by showing them that religion is not incompatible with having a jolly fine time. And there's no God there that a man can understand to be lifted to." (*If Winter Comes.*)

In the strong light thrown by the impressionist artists in fiction on its excrescences and extravagances, modern religious life is made to appear in false perspective. It must not be forgotten that now, as in the past, the finest elements in civilisation come to many if not to most young people, through the teaching and example of the servants and ministers of Christ—ideas of self-discipline and temperance, reverence for honour and truth, respect for humanity, and loving care and kindness for the suffering and the weak. Christianity has made Christendom what it is by the habits of thought and life which have passed into the substance of its being, rather than by the inculcation of doctrines, expressed in terms which in time cease to have vital significance for the advancing life and thought of humanity. The divergence in the life of the "man in the street" between what he really knows and believes, and what he is supposed or expected to believe by accredited or official teachers of the faith, is largely the result of the mistaken theory and misguided practice of "religious education." Religious education is the last kind of education to be touched by the breath of the modern spirit. Apart from that devotional drill which is fertilising or sterilising, according to the spirit and method of the devotion, what is known as religious education has only two sides—religious history and geography, and religious doctrine. In respect to both of these, there is in the nature of the case, no free discussion or criticism. The attitude of the teacher is almost entirely authoritative and dogmatic; the attitude of the taught is, or is expected to be, almost wholly passive and receptive. The result is what might have been anticipated, that men soon discover that what they had been taught to regard as unquestionable facts and indisputable truths are both questioned and disputed. They are in a parlous case, for they had come (without much reflection on the matter) to identify religion, or, at any rate, their religion, with the facts and doctrines aforesaid. Most of them adopt one of two alternatives. Either they become more or less antagonistic to religion in theory, and more or less indifferent to it in practice, or they shut off their minds from any further activity on the subject, and are content to

live in two universes. This latter alternative gives rise to mental and moral discomfort, only on the rare occasions when the two universes seem to come into contact or conflict with each other. Clerical authorities lament that the modern woman is following the example of the modern man, and finding a fuller scope for her intellectual and moral activities in secular and non-sectarian work, than in the round of church duties which had previously been found fully satisfying. Lastly, the youth of the church cannot help observing the very low level of their religious education and instruction, as compared with their education in other subjects, and come to regard it as negligible, if not contemptible.

It would be disastrous for the future of civilisation if the churches were to cease to play a part and a great part in the education of the human race. Despite their defects, they are spiritual agencies whose disappearance would inevitably bring about a lowering of the general level of public and private morality. Many of the members of the churches, both lay and clerical, are as fully aware of the defects as the most bitter of their critics. Only an acrid unsympathetic criticism would forget the manifold services of the churches in the past, or deny the need of them at the present time. Recent events have shown how thin is the veneer of modern "culture" and how easily civilised man can revert to the vices of savagery. The churches with all their faults have justified their claim to be the guardians of those supreme spiritual values which are revealed in the deepest, most mysterious experiences of the human soul, fighting with fate and circumstance, battling with devils or wrestling with angels. They may have sometimes confused the treasure with the earthen vessels which contained it, but they have not been wholly unfaithful to their trust. They have preserved and transmitted to succeeding generations of men, the greatest treasure of humanity, faith in the world of unseen realities, and in the constant presence of the Divine Spirit.

The faith of a church, like the faith of a nation, is tested in a crisis, first by the way in which it meets the crisis, and lives through it, and next by the way in which it lives after the crisis is over. Every nation which has gone through a crisis in its history comes out of it worse or better, strengthened or weakened, purified or coarsened. There is no such thing as "marking time" when spiritual destinies are concerned. You are either on the up grade or on the down grade. It may take some time to discover whether a man, a nation, or an institution is on the up grade or on the down grade. When the crisis is a great one, there are after-effects and by-products

which have to be worked out of the system, and this takes time. After nearly five years of what is called peace, the civilised world is still dazed. Its physical sensibilities are in some respects dulled and deadened, in others in a state of feverish excitation. Morally and mentally, it is bewildered, so that its reactions are uncertain. It is almost impossible to foretell how a community will respond to stimuli in any given case. It may respond with almost Quixotic extravagance, or it may be mean and hard, and jealous and cruel as the grave. Have the churches heard the call which has come to every nation and institution—Set thy house in order? They share in the common bewilderment of stricken humanity, and we need not be surprised if some of the ways in which they seek to realise spiritual ends are poor and mean indeed, sometimes directly despiritualising when they are not ludicrously ineffective. But for the most part, the churches are simply living on their inherited capital, in the hope that they will "carry on" in the future as in the past. The United States in the earlier part of its history accumulated a moral capital, on which it has lived through a succession of crises. Our sincere hope is that it is also adding to its inherited moral capital, so that its reserves will not be found exhausted when it comes to deal with the perilous problems of its future. Can we say the same of Australia and New Zealand, or are they living too much on the memories of the pioneer generations of the past, confidently trusting that they will go on from strength to strength without having to exercise the pioneer virtues? And what of the churches? They have inherited a glorious capital. Have they increased it or kept it wrapped in a napkin to be exposed to view at regular intervals, or is the faith delivered to the Saints in process of disintegration and dissipation? The up-to-date psychologist treats religion as a phenomenon of the individual consciousness, a manifestation of the psyche, to which there is no corresponding objective reality in the heavens above or in the earth beneath. The newest of new sociologists assures us in many chapters to that effect, that every church begins as a social utility, and ends as a social excrescence. In the kingdom of socialised man there will be no place found for churches, for there will be no need for them. It is my conviction that both theses are demonstrably false, and that much of latter-day psychology and sociology is based on an abstract view of life and history; that while professing to be purely positive and scientific, they start with assumptions derived from defective philosophies of the past, which require to be revised and corrected. Academic analysis and criticism may be reserved for another occasion. But such analysis and criti-

cism is not the business of the churches. Their most effective reply to the charge that they are dying or dead, is to show that they are very much alive. The soldier in the Salvation Army does not stop his work to disprove the statement that men have no souls to save; he just hustles round and saves them.

One of the most hopeful signs for the future of the churches is their discovery that besides being religious "bodies," going concerns, they have also souls, and that they have become dissatisfied with the state of their souls. It is true that this discovery was hastened by the perception that the "concern" was not "going" as it should, and that "something must be done." But as to what that something was, well, doctors differed. In a multitude of councillors there may be safety, but not much wisdom if they are all at sixes and sevens. Principles are few. Interpretations and applications are many. The philosopher is fortunate in that he is not expected to busy himself with the thousand and one ways in which principles are translated into practice, ideals into realities, visionary aspirations into the pedestrian virtues of the work-a-day world. The redemption of the world cannot be worked out in the study of the philosopher. Humanity must work out its own salvation. The forces through which life and thought take ever new forms are not to be found in any logical laboratory, but in the inspirations and aspirations of the human heart. For life we must go to life. I salute with respect and admiration the men and women who with little hope of visible returns, and with the most meagre worldly rewards, spend the days and years of a laborious life in a service which is most truly Divine, when it is carried out in the spirit of the Son of Man. All that I can hope to do, all that I dare do in the way of duty, is to offer some suggestions to those who in our present bewilderment do not know which way to turn. Sometimes the best way out seems to be the way back. Sometimes the religious life seems to demand contraction and restriction, at other times fruition, fulfilment and expansion of man's other spiritual interests and activities. Are we to return *ad fontes* as Melancthon said, to neglect all that has happened in man's spiritual development between the first and the latest centuries and to stereotype our religious thought and life in accordance with the hazy traditions, limited experience, and confused ideas of the early generations of Christians? Or shall we live and work in the joyous belief that the spiritual development of the race is still in its infancy?

"Our world is young,
Young, and of measure passing bound.
Infinite are the heights to climb,
The depths to sound."

If we leave out of account the multifarious specifics prescribed for the use of churches, either to bring them into action or to put them out of action, it would seem as if the various courses open to them could be reduced to three:—

1. To carry on as at present, furbishing up the old armour, oiling the old machinery, with a minimum of unavoidable scrapping, forced on them by recognition of the fact that after all they are living in the Twentieth Century.

2. To return *ad fontes*, leaving undetermined the number and nature of the sources to which the churches are to return for a renewal of their life.

3. To conceive reform not as a quantitative reduction of doctrine and practice, not as a putting back of the time clock, not as an impossible return to an outgrown stage of spiritual and mental life, but as an advance to a further and higher phase of development, under the guidance of the spirit of Truth.

It might be suggested that the last of these courses is that followed by the Roman Catholic Church, and that all that is necessary, if that be the right and proper course, is to return to the bosom of Mother Church, to take refuge from the storm and stress of modern life and thought, on the bark of St. Peter and his holy apostolic successors. It is they and only they who carry the divine commission to guide us into all truth. With all respect to the memory of the great and glorious company of teachers and saints to be found within the Roman Catholic Church, only a few words need be said, without irrelevance and without impertinence, to discriminate between the third course as described, and that prescribed by Roman Catholic conceptions of the Church and of Faith. After the earlier phases of Christianity had passed away, and the grandiose structure of the Faith had begun to take shape and form, Christian Dogmatics entered into alliance with Greek Philosophy, with the result that the Faith became identified with an intellectual system which was incomprehensible to the people. It is God, God through Christ, and Christ in God, who is the essential object of faith; but under Roman Catholic teaching, faith in a new sense, *fides implicita*, faith in the authority of the church was set up as a duty. Hence the further distinction between the *ecclesia docens*, the infallible vehicle of the Holy Spirit, and the *ecclesia credens*, "bound" to receive the teaching given, as infallible. (See Catholic Dictionary—Article *Church*). No matter how ingenious may be the efforts of Newman and others to reconcile the claims of Church Authority with a rational theory of religious development,

it is obvious that the third course, as I have briefly outlined it, is wholly incompatible with the Roman Catholic conception of the truth, or with its doctrine of the Holy Spirit. Those who wish to know how Roman Catholic authority regards the third course, may refer to the Papal Encyclical (published in the "Programme of Modernism") in which almost every tendency of modern thought or achievement of modern knowledge is condemned, and in which also there are described in detail the methods and measures to be adopted to stifle within the Church all that savours of modernism. Cardinal Mercier referred in a pre-war Pastoral to the "Catholic conception of a teaching authority, officially established by Jesus Christ, and commissioned to tell us, what under pain of eternal damnation we are compelled to believe." (See Tyrrell's *Medievalism*, page 11.) For the rest, Roman Catholic authority continues to profess the "humility of Jesus while maintaining the imperiousness of Caesar." The last Oecumenical Council (1870) adopted unanimously the *Constitutio de Fide*, which admitted the authority of papal decrees beyond the domain of faith. By the Encyclical *Pascendi* (1907) the submission of the clergy to the bishops is prescribed almost without restriction in every field of human activity not only as it has to do with religious and dogmatic questions, but as it extends to educational, social and political manifestations. A few words may be said in conclusion, on each of the three courses I have already outlined. The first course recommends itself to those who, fearful of change in the fundamentals of the Christian faith, are unable to discriminate between the kernel and the husk, the truth and its wrappings, between Christ and the creeds, between the statement of the faith and its exposition, between what can be directly verified in experience, and historical or doctrinal statements whose verification or ratification is dependent on the nature of historical evidence or philosophical analysis. The ordinary adherents of the churches may be excused for ignorance of the demands made by the conditions of modern life and thought and even for a half superstitious devotion to the old forms and the old ways, which once were new forms and new ways, experiments and adventures of the spirit. But the leaders of the churches cannot be acquitted of the charge of want of courage, insight and foresight, when they offer, as in the case of the Proposed Doctrinal Basis of the United Church of Australia, a rechauffé of obsolete or half forgotten forms and formulas, for the moral and spiritual sustenance of thinking men and women in our time. They hope, I suppose, that the churches will muddle through somehow with the least possible changes in their equip-

ment. But medieval armour is not well adapted for the modern warfare of the spirit.

The second course seems at first sight to be in harmony with the spirit of the Reformers. The first Reformers, great as they were, could not emancipate themselves from the thought-forms and categories of their time. Luther and Calvin were really the last of the great medievalists rather than the first of the Modernists. Apart from certain important points of principle and practice, in which they rejected Papal authority, they had the medieval theological mind, and brought that mind to the interpretation of the teachings of the primitive church. The minds of both men had been "made up" for them in all essentials by Augustine and the medieval masters of the schools. They could not therefore, even with the best intentions, attach Protestantism to what was most primitive and purest in Christianity. They simply carried on the theological traditions they had received, and their successors transmitted the same traditions in the form of elaborated confessions and catechisms to be a burden on the minds and consciences of later generations.

The Protestant idea of a return to the primitive Christian mind was a psychological as well as an historical impossibility. It led to difficulties and absurdities in which the Protestant churches are still entangled. For it drew an imaginary line across the track of Christian development and said: thus far, but no farther! The result was difficulties with regard to the miraculous, difficulties with regard to the continued presence of the Holy Spirit in the Church and the nature of its manifestations. Revelation and the old intercourse between the Divine and the human worlds seemed to have come to an end on a particular but undefined date. Fear of Romanism and Sacramentalism drove most of the Protestant churches to the opposite extreme of a prosaic interpretation purged from all traces of mysticism. The ordinances and the recognised means of grace became ecclesiastical contrivances through which the Spirit was guarded from erratic manifestations, and the faithful preserved from the errors of Roman Catholicism. Recent Protestantism has learned much from the liberal and sympathetic treatment of the nature and development of Religion by writers like Eucken and Höffding, Sabatier and Boutroux, Royce and James, and many others; but it has not learned enough to make it alter its unhistorical and unphilosophical attitude to the problem of Christian origins and Christian development. The Protestant Churches are still to a great extent in bondage to a literalism and traditionalism which are inconsistent with a free religion of the Spirit, or with the

Gospel of Humanity as taught by the Son of Man. And so we are driven to the third alternative. It may be that in advocating the third course, some of us will appear to be looking too far ahead, to be thinking of the needs not of the present generation but of the next generation but one. That is possible, but perhaps excusable, if we remember that so many of our present-day theological and ecclesiastical guides are still speaking the language and thinking the thoughts not of the last generation but one, but of the last century but one.

Religion and religious interests are no longer things to be captured and confiscated by ecclesiastics and theologians. Two things are noteworthy in the history of recent religious life and thought, the number and variety of religious movements, outside the recognised official churches, and the fact that the most enlightening and inspiring works on religion during the last two generations have been written by men who were not professional or official teachers of theology. A French writer (F. Buisson) has said, "There is only one religion, there has ever been but one, under the numberless forms corresponding to the different ages of human civilisation. This is the religion of goodness, or, to analyse it more deeply, the religion of spirit, aspiring to fulfil its function of spirit, to know the true, love the beautiful, and do the good, the last summarising the two others. It is the effort of the human soul to realise its law, the instinct and urge of humanity pursuing its destiny, and which man represents to himself as coming to him from the deep of heaven, so authoritatively does it command him, so much does it appear to him as the Supreme law of the universe."

The Christian Churches may surely accept this noble view of man's nature and destiny without being untrue to their faith in Christ as the revelation or incarnation of the Divine. A rational consideration of the nature of religious development in general will in time lead to a more intelligent and more truly spiritual view of the nature of the development of Christianity itself. In a sense, the supreme truths of morality and religion do not develop, or even change. What happens is that lower standards are displaced by higher standards of goodness, inadequate conceptions of God by less inadequate conceptions, external authority by internal authority. Thou shalt love thy neighbour as thyself. That, said T. H. Green, has never varied in effect; all that has varied in the upward progress of humanity is the practical answer to the question—who is my neighbour? To apply this conception of development to Christianity is no doubt a difficult and troublesome task, for it means a reinterpretation of dogma, perhaps also a

restatement of dogma, although not necessarily in similar conceptual terms. There would be losses, but there would be greater gains. The losses would prove to be imaginary, or, in other words, the losses themselves would be gains. Religion would once more become a dynamic faith capable of removing mountains and of renewing the world. But no church can truly accomplish its own particular task, or fulfil its special historical mission, if it lacks the wider vision, the higher hope, the deeper faith.

"I believe in the Holy Catholic Church" (said the late John Hunter), "a great spiritual ideal which is slowly realising itself. Every age of history has revealed some fragment of the ideal, and every sect has borne witness to some phase of it. . . . Look behind orders and words, and feel the life of the Church visible and invisible, militant and triumphant, made yours by spiritual affections and affinities. This is the Church Catholic—not of man, but of God."



REVIEWS.

PSYCHOLOGICAL TYPES, OR THE PSYCHOLOGY OF INDIVIDUATION. By C. G. Jung. Translated by H. Godwin Baynes. The International Library of Psychology. Keegan Paul, London, 1922.

During the last decade of psychological research into the nature of man's impulsive life, the rewards have been rich and abundant. But with increasing understanding of the common dynamic of human growth, expressed through the instincts and emotions, there has come the realisation of the ever more pressing need for a complementary study. Granted that the human mind, conscious and unconscious, evinces great impulsive forces, (life urges, *élan vital*, etc.) where in the case of any given individual, is one to look for guidance as to the particular lines along which these forces must be directed so as most fully to subserve the needs of the developing personality? In other words, "A Psychology of Individuation" is required to complement the already extensive work on the nature of the common impulsive life, if Psychology is to substantiate its claims as a study vitally relevant to the understanding of human conduct, both in its general similarities and in its individual differences. Jung's latest book, on Psychological Types goes far to satisfy this need.

In previous writings Jung has maintained his belief in the existence of two distinctive types of human conduct, the introverted, and the extraverted. The introvert he identified with the thinker, or subjective individual who sees all life through the prism of introspective analysis. The extravert he regarded as the outwardly emotional person, readily and objectively adapting himself to new situations by the easy assumption of a free un-selfconscious, hail-fellow-well-met attitude. While keeping this distinction between the introvert and the extravert types, Jung no longer identifies the former with the characteristic of adaptation by thinking, or the latter with adaptation by feeling. He now recognises four basic psychical functions; thinking and feeling, the rational functions; sensation and intuition, the irrational functions. In a given individual any one of these functions may predominate, and may be either extraverted or introverted, a position which results in the positing of eight fundamental human attitudes. The particular attitude characteristic of a given individual, say the introverted thinking attitude, will be marked by relatively great conscious development and "differentiation"; while the complementary functions, say of feeling and sensation, will remain relatively unconscious, undifferentiated, infantile and archaic. The aim of individual development then must be the levelling up of these complementary functions, for although even in the case of the apparently most completely balanced individual the master eye of the analyst will be able to detect a list to port of introspection, or to starboard of extraversion in regard to some particular function, yet if the list be too great, shipwreck must inevitably result. Jung seeks to establish his type differences by a wealth of historical illustration ranging from a discussion of typical medieval attitudes to the problem of transubstantiation to an examination of Nietzschean aesthetic characterology.

At the end of this rich, varied, and fascinating discussion, the reader may be left with the secret fear that he himself is a psychological anomaly who fails to fit into any one of the characteristic type schemes. Yet the latitude for individual differences is wide, for the various types and degrees of function-differentiation allow of countless combinations; and however applicable or inapplicable to individuals as they stand the various type-schemes may appear to be, the great im-

portance of the distinctions drawn by Jung cannot for one moment be doubted.

In face of Yung's many years of painstaking collection of clinical evidence, one hesitates to propound an alternative hypothesis based upon slight and empirical observation, but it does not seem outside the bounds of possibility that further genetic study may prove these type-differences to be characteristic of various stages in the development of the one individual. Their sequence and their relative predominance and permanence will of course vary considerably in individuals, but the general principle of their occurrence may prove to be chronological rather than individually differential.

One admirable feature of Yung's book is the insertion of a lengthy chapter of definitions. The Soul finds a place among these definitions, thus entering once more the ranks of respectable and scientifically accredited terminology, even though stripped of many of its celestial trappings. Yung's definition of *libido* will cause some havoc among those expositors who treat a conceptual formula of an original investigator as if it represented a psychological substance or entity. For Yung the libido is not a psychic force, a quantum of energy, as so many have supposed, but rather a quality, the intensity or "psychological value" of a psychic process.

Undoubtedly the appearance of this work is an important event in the history of psychological science. It will supply the starting point for many investigations which will cumulatively contribute to the formation of a much needed Psychology of Individuation.

D. M. R.

MEDICAL PROOF OF THE MIRACULOUS. By Dr. E. Le Bec. Harding and More. London. 1922. (Our copy from Angus and Robertson.)

This interesting book is written by one Roman Catholic surgeon and translated by another. It claims to offer "precise scientific evidence of some marvellous cures which have occurred at Lourdes and elsewhere, together with clinical histories of the patients concerned." Every religion has its saints and martyrs and miracles, but no religion is quite willing to admit that the miracles or martyrs or saints of other religions are on the same level as its own. Mr. Gladstone once said that a religion without dogma was a contradiction in terms. A church or religion wholly without intolerance would soon cease to exist. Faith Healing, according to Dr. Le Bec, "is nothing more than another form of suggestion," and he quotes Charcot, who, he says, rendered a signal service to the Church by showing that cures of the faith-healing type, whether called supernatural or not, are pseudo-miracles, since they obey natural laws. The Roman Catholic Church has always been very cautious in its attitude to alleged miracles, and following the ruling of Pope Benedict XIV., declines to consider any cure miraculous, which can be explained as in any way due to the influence of the nervous system, including even such cases as paralysis, contracture and hysterical blindness. According to the author, the whole "crux and characteristic" of the miracle—i.e., the direct supernatural intervention—is the absence of the time factor. "Time is an absolute necessity for the progress of physiological processes, and where it is lacking, when anatomical structures are evolved without it, the progress of events cannot be natural." The author gives elaborate details of typical cases in support of his contention that the time factor has been so abbreviated in each case, that the cure can only be attributed to a supernatural force. What is this force? At Lourdes it is a "mysterious

force emanating from the Holy Eucharist . . . the reality of His Presence under the sacramental species." The wind bloweth where it listeth, and this mysterious force sometimes acts in ways which the author describes as "curious." "The Divine Physician often sees fit to heal those who apparently merit it least . . . another curious thing is that miracles are rare in the case of the rich."

The author claims to keep to purely scientific demonstration, and declines to trespass on the "territory of the philosopher or the theologian." In some instances, however, he seems to desert the purely medical standpoint. "Can one possibly sustain the thesis (he asks, p. 34) that it is only a natural force, when it has acted precisely against natural properties? This would be the destruction of nature by herself. A manifest contradiction. No, the force is a supernatural one." Arguments of this kind may satisfy those who have been brought up on text books of scholastic logic. Until we know more about the forces of nature and natural properties, it is idle to talk of the "destruction of nature by herself." The argument on which the author mainly relies is the absence of the time factor. According to Benedict XIV., it is sufficient to constitute a supernatural cure, that it be effected "in a shorter time than would be possible in the case of a natural cure." The evidence in the cases cited in this book seems to show that the healing processes were not "normal," but would prove the presence of a supernatural cause only to those persons who are already prepared for other reasons to be convinced. Medical science is still largely an empirical science, and cannot dogmatise about the time factor. Medicine has yet much to learn from Bio-Chemistry, and a deeper and fuller knowledge of the ultimate constitution of matter may lead to a control of the conditions of health and disease, which will enable medical science to work "miracles" by reducing the time factor to a degree which would satisfy even Benedict XIV. According to Sir James Barr, past President of the British Medical Association, such miracles are being wrought now by Dr. Abrams, of San Francisco. What seems to some a violation of the laws of nature may in time be recognised as a fulfilment of her deepest laws. Meanwhile, we are too much inclined to quarrel as to the proper way of describing ultimate causes, or the ultimate cause. Behind the far-receding gradations of continuous law, some prefer to imagine a sleep-walking Pan, others to think of an ever-wakeful Father. Perhaps most of us are content with Faust's answer to Margaret.

THE MEANING OF MEANING. By C. K. Ogden and I. A. Richards. Kegan Paul Trench Trubner & Co. London. 1923. (Our copy from the publishers.)

This work with the enigmatic title is an elaborate study of the influence of language on thought and of the Science of Symbolism. Few books have appeared in recent years, which cover so much ground, deal directly or indirectly with so many subjects, or so faithfully, and sometimes ruthlessly, with so many authorities. The writers are mighty hunters before Minerva. They start many hares, even though they do not succeed in running them all to ground. They are, of course, not the first in the field. Not to speak of writers like Bréal in France, Pierce in America, and Husserl in Germany, Mr. Alfred Sidgwick has devoted almost a lifetime to the task of exposing and correcting the many vices of popular and philosophic language and thought. And there are others, some of whom receive their due meed of praise, and others deserved chastisement in this interesting though not entirely satisfactory work. For with the appearance of system, it is not truly systematic in the proper sense of the term. Four-fifths of the treatise are critical, and after working their way through many morasses of

misunderstanding, the authors emerge, the reader struggling if not floundering after, to tell us that we are now in a position to receive a "general impression of the scope and task of the Science of Symbolism!" In other words, at the end of the book we are prepared, more or less, to begin the systematic study of the subject. But for what we have received, we are truly and greatly thankful. The professional philosopher will find many calls to self examination and humility of spirit. Others will find occasions for astonishment at the subtleties and divergencies of the philosophic mind—e.g., of the Seven American Professors (*Essays in Critical Realism*) who succeed in darkening counsel with much knowledge and many words. But all readers, professional or unprofessional, will profit from a careful reading of this important work, written with great verve, much skill in logical and psychological analysis, and not a little wit and humour. The critical reader will find entertainment as well as instruction in every chapter. The general reader will probably find the chapter on the Power of Words more interesting and instructive than the others. The value of the book is increased by two supplementary sections—one by Dr. Malinowski (already favourably known to Australasian readers), on *The Problem of Meaning in Primitive Languages*; the other by Dr. Crookshank, on *The Importance of a Theory of Signs and a Critique of Language in the Study of Medicine*.

STUDIES IN EXPERIMENTAL EDUCATION. No. 1. The Standardisation of Tests of General Ability for Australian Children. Part 1. The "Opposites" Test. By G. E. Phillips, M.A., D.Sc., Sydney. Pepperday & Co. 1923.

Examinations we shall always have with us, but we can diminish their evils by abolishing some and simplifying others, and by discriminating between those which are tests of knowledge, however acquired, and those which are tests of general or specialised ability. Examinations of the latter kind, when properly conducted, mean a great saving of time and labour to all parties concerned. Employers and persons set in authority have yet to learn that they will be a much safer guide in the selection of candidates for employment than a document stating that A.B. has "passed" in so many subjects. A smart teacher can get almost any one through almost any "book" examination. That explains why so many swans sent up to the University turn out to be geese, and why so many officials seem to be lacking in elementary horse sense. With the help of Dr. Phillips and his fellow workers, we are going to change all that. The practical teacher will find in these tests a scientific method of classifying pupils, so as to grade them in homogeneous groups, and so prevent much of the waste of energy which is too common in school work. He will be able, by their means, to discover and possibly remove causes of retarded development. He will find a new interest in his labour. He will cease to be an empiric, a crammer, and become a scientific student, as well as an intelligent master of his craft.

Much laborious research work is necessary before all the new tests can be constructed and standardised so as to suit the needs of Australian schools. This first part of a series of investigations is confined to one particular test. It has been applied to 4148 children in Sydney primary schools—2463 boys and 1685 girls, ages 7-15 inclusive—drawn from nine schools, varying in social status and other respects. The results of the experiment are set forth in full detail, following on a lucid exposition of general principles. The Sydney Teachers' College is to be congratulated on the success of this first step in a great and important undertaking.

HOW TO BUILD MENTAL POWER. By Grenville Kleiser. Funk & Wagnalls, N.Y. (Our copy from the "Personal Efficiency Institute," 121a Castlereagh St., Sydney.)

This book seems to us one of the best of its kind. There are now many principles of Mental Science which are serviceable. There are others which are the real solution of our difficult practical problems. The author draws upon a wide knowledge of these principles, and shows, in his application of them to business, both experience and skill. The book is therefore not just a series of recipes, but provides a very conscientious course of training which should prove of the greatest benefit, especially to the young man about to start upon a career.

H. T. L.

THE BIRTH OF PSYCHE. By L. Charles Badouin. Translated by F. Rothwell. Kegan Paul. London. 1923. 5/- net. (Our copy from the publishers.)

Readers of the same author's *Suggestion and Auto-suggestion* need not expect to find in this book a treatise on Psychology. It is the attempt of an artist who is also a psychologist, to reconstitute in memory the first few years of his own life. The book does not quite fulfil the promise of the preface, which is written with characteristic Gallic wit and grace. Memory is an artist, and out of the recollections of childhood creates a "fiction truer than reality itself." "Our memories, more especially those of childhood, become blended with and superimposed upon one another; they unite in one single image, which is far more a portion of ourselves than an event experienced." M. Badouin, like Goethe, might have entitled these recollections, *Dichtung und Wahrheit*. Where science fails, art succeeds, and so let us be grateful for these delicate and subtle studies, so far removed from the banalities and extravagances of much pseudo-scientific psychology. We notice that the author seems half ashamed of his own success as a purveyor of psycho-analysis for the million. He bewails the "feverishly epidemic condition aroused among the general public by the success of Coueism," but he thinks that the blame lies also with "those enthusiastic admirers who at all times have been the worst enemies of any cause they have at heart."

INSTINCT AND INHIBITION. By Stuart Moore, B.A., M.D. From *The New Zealand Journal of Science and Technology*. Vol V., No. 5. Wellington, New Zealand. 1922.

An analytic and comparative study, in which the author sketches in a clear and interesting fashion, the parallelism between the body and the "personality" in respect to their functioning and integration, with special reference to psycho-analysis, as a method of modifying human behaviour.

IN THE MENTAL WORKSHOP. Reflections on Modern Psychopathy.

By Ethel Mortimer Langdon. Sydney. Penfold. 1922.

We regret that the abbreviated notice of this pamphlet in last issue gave a wrong impression of its scope and value. It made no pretence to be an original contribution to knowledge. The author has in the past done good service in calling attention to the need for more systematic study of the conditions of mental health and disease. The pamphlet emphasises the value of modern psycho-therapeutic methods in a non-technical but interesting and effective treatment of the subject.

CHRISTIAN LIBERTY AND ECCLESIASTICAL UNION. By Francis Anderson, Emeritus Professor of Philosophy, University of Sydney. Price 1/-. Angus & Robertson. 1923.

An examination of the proposed "Basis of Union of the United Church of Australia."

SCHOOLING, Vol. VI., Nos. 1-4. 1922-3. Published by the Teachers' College Press, Sydney, N.S.W. Five issues yearly. 5/- per annum (post free).

Maintains its place as the foremost educational periodical (from the point of view of the Theory and Practice of Education) published in Australasia. The contents are varied to suit the more pressing needs of teachers, but are all of a high standard. The theoretical and practical interests are catered for in fitting proportion. The Editor's notes and comments are especially valuable. *Schooling* may be recommended not only to the professional student of Education, but to all (including politicians) who wish to become acquainted with the changes which are rapidly transforming our schools into real instruments of education.

THIRD ANNUAL REPORT of the INDUSTRIAL FATIGUE RESEARCH BOARD, to 31st Dec., 1922. H. M. Stationery Office, London. 2/- net.

The Industrial Fatigue Research Board was appointed in July, 1918, by the Medical Research Committee and the Department of Scientific and Industrial Research, with the object of investigating the relations of hours of labour and other conditions of employment to the production of fatigue. It has gradually acquired an exhaustive view of this complex problem and built up an organisation for carrying out industrial and laboratory investigations into its various aspects. Excellent summaries of the Board's work have already been presented in its First and Second Annual Reports, and the present Report attains the high standard of its predecessors. Under the Board's direction, no fewer than forty pieces of research work have now been published. These deal with a wide variety of special problems in industrial psychology and physiology, and represent the most systematic and sustained investigation into industrial fatigue that has yet been made. The Board states that "the time is now arriving when, as the combined result of their investigations, principles of general application, open to no reasonable doubt, are beginning to appear"; and they hope soon to be able "definitely to point to the establishment of certain fundamental principles governing fatigue and efficiency."

B. M.

STUDIES IN HUMAN NATURE. By J. B. Baillie, Professor of Moral Philosophy, University of Aberdeen. Bell & Sons, London, 1922.

The title and the authorship of this book may both stand in its way. Even a *Treatise of Human Nature* would now have difficulty in placing itself; and the author is so well known as a definite philosopher that he may be thought in these *Studies* to be offering instances. They do fall in with his previous work: there is still the rescue of Spirit from the dead hand of the Idea, and of oneself from being a molecule of the universal One; Ruggiero may still say that Hegel is again reaching his proper truth, and regret that you cannot quite italianate a Scot. But here Prof. Baillie is deploring the pre-war divisions of philosophy, themselves due to war, defensive, but hostile, distracting, and expensive. "The best service which philosophy can render at any time is that of supplying a criticism of life. At a time like the present, when so much has broken from us, and our main hopes for security lie in the future, this service seems all the more necessary. Men want confidence in the future as well as confidence in the past to make life tolerable in the present. And this confidence can only come from a fuller insight into the resources of human nature." That is the common problem: the resources of human nature. An analysis and inventory of them, with statistical connections, is well enough, but they might as well be dead. The trouble

has been that when taken alive they seem to pass from fact to the dock of theory, and to answer its questions in place of speaking for themselves. In the brave days of confidence—in the last quarter of last century—the question was whether mind could do anything, or did everything, and, so little did the facts matter in the evidence, it was agreed that, if mind could do anything, it could do everything. Psychology was so keen to be out of such a court that, to deepen the cut, it left truth, beauty, and goodness to the normative sciences. The resources of human nature were scattered, and became the business of no one. Individuality is returning, but psychology has welcomed it only as a branch, an applied psychology. A mind or brain has become a laboratory of mental processes, as the body has become one of biochemical processes. In the one there is the fear that life may again come in as a cause; in the other the self that is feared is a structureless ghost. Perhaps the simplest way is that of M. Grasset, who argues for vitalism while urging that life is always a product. Prof. Baillie thinks that philosophy is not blameless; it has insisted on its tradition that the nature of a thing is known from what it grows to, and has regarded the history of mind and mankind too much as a ladder; it has looked on inferior forms as pale images of the best. He would take the way of biology, and give its own value to everything; theories have not required, and boundaries have not permitted, a direct study of our individual resources. Hence these "studies." They begin with anthropomorphism and end with laughter and tears. They are strung on one thesis, "the essential integrity of the mind," and, as psychology, they may be read backwards. But read forwards they are also philosophy: "the mind's entire fulfilment is in very literalness a revelation of the real." In some sort everyone would agree, even Prof. Planck, who once devoted a lecture to showing that the history of physics may be written as the "de-anthropomorphising of nature," and that its aim is a *Weltbild* with mankind out of it. At the close he added that of course an intellect of some sort is presumed. This is the topic of the second of these studies. Again we are all willing to say that as nature is visible only to an eye, so it is intelligible only to intelligence; but when we come from physics and even logic to psychology, the remark has to come from the close to be a principle at the beginning. Alive the categories are acts. The conceptions which make an object intelligible are mental operations; "we can no more speak of them being 'there' before these operations are performed than we can speak of leaves and branches being 'there' before or until the living energy of the tree has elicited them into being." The conceptions are not objects, and "there is no logical ground for the view that there is a self-closed final catalogue or scheme of categories." They are various ways of grasping, they are not the thing grasped, nor is the thing intelligible except in the grasp. This is disconcerting to the notion that there is a ready-made world, and that it is the function of psychology to show how it comes to the light of consciousness. The third study on the non-logical factors in knowledge, and the fourth on memory-knowledge introduce the upsetting notions of spontaneity, originality, and intuition. These are part of our resources, but they have no part in a picture of mental phenomena, the elements and their compounds. On their account Prof. Baillie puts imagination ahead of conception; I think it is Prof. Ward who points out that, if Newton had not come, some one or two would have come and done all the work of the *Principia*, but there would have been no such hope of a *Hamlet*. The matter

which is driving psychology back from phenomena to individuality is, however, emotion. The fifth study is "the function of emotion in the consciousness of the real." "It gives more reality than knowledge, discovers the individual to himself," and while it promotes the sense of distinctiveness among us, it constitutes at the same time the bonds that unite us. And so to the end. These are the reflections that naturally come to a reviewer for the new *Journal* who would like to see a closer union between psychology and philosophy than the "and" on its cover. One need not add that confusion is union of the worst kind.

W.M.

MODERN FRENCH PHILOSOPHY: A Study of the Development since Comte, by Prof. J. Alexander Gunn, M.A., Ph.D. (University of Melbourne), with a Foreword by Henri Bergson. (T. Fisher Unwin, Ltd., London.)

For some years past, stimulated, no doubt, by the wish to get behind the Bergsonian position and trace its antecedents in French philosophical thought, an increasing interest has been shown in Modern French Philosophy, and especially in the spiritualistic development represented by Ravaisson, Laehelier, Boutroux, Guyau and Bergson himself. Miss Stebbings' book on "Pragmatism and French Voluntarism" was a welcome first instalment, and Guido de Ruggiero's section on "French Philosophy" in his work on "Modern Philosophy" (tr. by Hannay and Collingwood) was a stimulating sequel. But they do not cover the ground. As M. Bergson points out in his eulogistic foreword to Prof. Gunn's work, the subject chosen is a new one, there being no other work that deals with the past Comtian period of French Philosophy as a whole and in its main bearings. Professor Gunn, who will be already known to many readers as the author of "Bergson and His Philosophy" (Dutton & Co., N.Y., 1920), takes a systematic survey of the whole period. The main currents of speculation are traced through the successive fields of Science, Freedom, Progress, Ethics and Religion, and the conflict between Science and Morality shown to be of determinative importance. More particularly still, the central issue is narrowed down to the Problem of Freedom; and the movement from determinism to freedom, from the Necessity of Comte and of Taine to the Contingency of Boutroux and of Bergson is set in special relief. The central chapters on "Science" and on "Freedom," which present the main issue in its simplest form, would make an excellent Introduction to Philosophy in general. The sharp swing from rigid determinism to contingency suggests, on the one hand a pure pulse of Hegelian dialectic, provoking a search for some transcending synthesis. Also, and more strongly still, it suggests a continuous development of thought, starting from a limited positivist outlook, and widening out through various phases (e.g., the Neo-critical, associated with the name of Renouvier) into the deeper and completer insight of a Spiritualistic Philosophy. It is significant that the latest representatives of the "Idealistic Reaction Against Science" are themselves imbued with the spirit and knowledge of Science, and can thus criticise it from within in effective and original ways.

The dominating impression left by this work is that French Philosophy is a very living and progressive thing, and that it is eminently worth while to explore its modern origins. To this end no better guide could be desired than Prof. Gunn. "Modern French Philosophy" is not a sketchy outline, but is remarkably rich in content, and by very reason of its historic precision, most suggestive and significant for the philosophical reader. We hope, in the interests of the Higher Entente, that it will be widely read.

W.R.B.G.

THE FORUM OF EDUCATION. A journal of Enquiry and Research in the Psychology, Philosophy and Method of Education. Issued by the Training College Association. Vol. 8, No. 1. Feb., 1923. Longman's, London. Appears thrice in the year. 5/- per annum, post free.

This is the old Journal of Experimental Psychology under a new name. It is edited by Professor Valentine, of Birmingham University. The first number included the following articles: The Training Value of Exact Studies (Helen Wodehouse); Education and Spiritual Realities (Bompas Smith); The Value of Intelligence Tests in Scholarship Examinations (R. R. Dobson); The Play Attitude in the Work of Teaching (A. G. Hughes); Gentile and the New Education in Italy (A. J. Monahan); along with other articles of general and professional interest.

The following have been received:

"An International Banker's View of the League of Nations," by Otto H. Kahn. Issued by the Committee of Business Men, New York.

The Moral Self, Its Nature and Development, by White and Macbeath; The Modern Educator's Library, London, Edward Arnold. (Review later).

The Medical Journal of Australia, Sydney. Published weekly. Price 1/-.

World Peace. Arunachal Mission. Published weekly. Price 2 annas. Calcutta.

NOTES AND NEWS.

We welcome the newly-formed Australian Branch of the English Association. At the inaugural meeting in the Great Hall of Sydney University Professor Mackail gave an address on Shakespeare. The success of Professor Mackail's lecturing tour in Australia allows us to hope that the Australian Universities will continue to invite distinguished lecturers from overseas. Professor John Adams, Emeritus Professor of Education, University of London, comes to us next winter by way of America, where he is now acting as Exchange Professor of Education in the University of California. We understand that the educational authorities of New Zealand have made arrangements with Dr. Adams to extend his visit to the Dominion.

The establishment of the Research Chair of Medical Psychology at the University of Queensland will, we hope, act as a stimulus to the other Australian Universities, to make greater provision for research work than they have hitherto been able to do. So far as we are aware, neither the Government nor the University of Queensland contribute anything to the financial support of the new chair. The source of the endowment is, we are informed, the Red Cross Society.

The first occupant of the chair is Professor J. P. Lowson, M.A., M.D. Dr. Lowson studied at Edinburgh and Cambridge Universities, and afterwards at Munich, Paris, and London, in the leading hospitals and clinics. During the war he had charge of the mental ward at the Military Hospital in Mesopotamia, and later, after service in France with the 37th Division, was Neurologist to the Third Army Shell-Shock Centre. Before coming to Australia he was acting as demonstrator in Experimental Psychology at Cambridge University, and also as neurological specialist attached to one of the Government Depart-

ments. He has already done valuable research work, especially in connection with the Psycho-Neuroses of Warfare.

The Melbourne University Philosophical Society has arranged an interesting syllabus of work for 1923. At the opening meeting the discussion of the previous year on the Problem of the Group was continued, with special reference to Guild Socialism. Professor Gunn lectured on the replies of some recent French writers to the question, What is Morality? Other subjects discussed have been the Epistemology of the Louvain School, Body and Mind, and the Problem of Free-will.

The Sydney Branch of the Australasian Association of Psychology and Philosophy held its inaugural meeting in June, at the University, of Sydney, when Professor F. Anderson lectured on Social Classes and the State. Nearly 100 members were enrolled. At the second meeting in August Dr. G. E. Phillips read a paper on Spearman's Two Factor Theory of Mental Ability. The following officers were elected at the inaugural meeting: President, Professor H. T. Lovell, M.A., Ph.D.; Vice-Presidents, Professor A. Mackie, M.A., and Mr. G. V. Portus, M.A., B.Litt., Director of Tutorial Classes; members of the Council, A. H. Martin, M.A., Ph.D., G. E. Phillips, M.A., D.Sc., Miss D. Rivett, M.A.; Hon. Secretary and Treasurer, C. P. Gould, B.A.

Mr. R. P. Anschutz, B.A., of Auckland University College, has been awarded a Senior Scholarship on Philosophy in the University of New Zealand.

Mr. Rex Knight, Gold Medallist in Philosophy at Sydney University, has been awarded a Travelling Scholarship. He will continue his philosophical studies at the University of Cambridge, where he has been awarded an Exhibitor at Trinity College.

Members of the Australasian Association of Psychology and Philosophy.

(Joining the Association between May 19 and August, 1923.)

AGAR, PROF. W. E., M.A., D.Sc.,
F.R.S. (Vic.).

ALLEN, MISS L. W. (Eng.).

ANDERSON, LADY (N.S.W.).

ANDERSON, G., B.A., LL.B. (Vic.).

ANDERSON, J. B. (N.S.W.).

BAKER, F. P. (Q.).

BANISTER, H. E. (Q.).

BEALE, DR. J. G. M. (N.S.W.).

BEAN, J. W. B., B.A., M.D.,
M.R.C.S., L.R.C.P. (N.S.W.).

BEAN, MRS. (N.S.W.).

BLACK, W. E. (N.S.W.).

BLAIR, MISS (N.S.W.).

BOARD, PETER, M.A., C.M.G.
(N.S.W.).

BOHRSMANN, MISS E. (N.S.W.).

BOWEN, E. C. (N.S.W.).

BRIDGES, C. M. (N.S.W.).

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